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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF)

EVALUATION OF FISHING EFFORT REGIMES IN EUROPEAN WATERS PART 2 (STECF-12-16)

THIS REPORT WAS REVIEWED DURING THE PLENARY MEETING HELD IN BRUSSELS, BELGIUM 5-9 NOVEMBER 2012

Request to the STECF

STECF is requested to review the report of the **EWG-12-12** held from September 24 – 28, 2012 in Barza d'Ispra, Italy, evaluate the findings and make any appropriate comments and recommendations.

Introduction

The report of the Expert Working Group on Evaluation of fishing effort regimes in European Waters Part 2 (EWG -12-12) was reviewed by the STECF during its 41th plenary meeting held from 5-9 November 2012, Brussels, Belgium.

STECF would like to commend the members of the working group on their sterling effort in preparing such a comprehensive report. The leadership and input provided by the chair, Hajo Rätz, is particularly valuable.

STECF notes that the continuing improvements in procedures for automatic and manual checks introduced by the JRC staff have provided the group with more time to address the different ToRs as evidenced by the additional partial F analysis and the exploration of spatial catchability.

The following observations, conclusions and recommendations represent the outcomes of the STECF review.

STECF COMMENTS, OBSERVATIONS, AND CONCLUSIONS

STECF notes that following the first meeting of this Working Group STECF EWG 12-06 (11-15 June 2012 in Lisbon), a report entitled "Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation of Fishing Effort Regimes in European Waters Part 1 (STECF-12-09) has been published. Subsequent to that work, however, some of the data used in the production of the report were revised and updated and as a result, the summary tables were amended the report corrected. Furthermore, a number of outstanding tasks and additional terms of reference addressed.

A more complete and substantive report was completed during EWG 12-12 at Barza and this report (reviewed here) now replaces the earlier one.

The improvements documented in the Report of the STECF EWG 12-12 are related to the following:

- addition of the effort regime evaluations related to Western Waters and the Deep Sea (section 5.9).

- updated section 5.3 on the effort regimes in the wider North Sea (Skagerrak, North Sea, 2 EU and Eastern Channel) due to Dutch discard data corrections and additional effort data submission.
- CPUE and LPUE estimates by fisheries and Member States for all regime evaluations provided in digital appendixes to the report. They are available at the meeting's web site:

  http://stecf.jrc.ec.europa.eu/web/stecf/ewg12

- in line with STECF comments during the 2012 summer plenary (40th plenary), provision of updated conversion factors of fishing effort transfers between donor and receiving gear groups covered by the cod plan.
- provision of updated estimates of partial fishing mortalities generated by Member States fisheries in relation to ICES estimates of total removals or catch which generated the total F estimates in the first place.
- exploratory geographical catchability analyses for the cod stocks in the Baltic and the wider North Sea.

STECF reiterates its summer plenary 2012 comments that the Expert Working Group extensively addressed the ToR regarding the fishing effort regime evaluations for the following areas:

1. Eastern and Western Baltic,
2. the Kattegat,
3. the Skagerrak, North Sea, European waters in ICES Div.2 and the Eastern Channel,
4. to the West of Scotland,
5. Irish Sea,
6. Celtic Sea,
7. Atlantic waters off the Iberian Peninsula,
8. Western Channel,
9. Western Waters and Deep Sea, and the
10. Bay of Biscay.

STECF EWG 12-12 tasks have been supported by the DCF fishing effort data call in 2012. STECF notes a general improvement in data completeness and quality as well as compliance by Member States with data provision deadlines. However, the work of STECF EWG 12-12 was again compromised by some important data omission, submission delays, incomplete data and erroneous data submissions and re-submission. Details about the DCF data call definitions, data quality in 2012 and significant shortfalls as identified by JRC and the experts contributing to the working group are summarized in section 4.

STECF notes that the aggregations of fisheries parameters presented, such as landings, discard estimates and fishing effort are consistent with the fisheries definitions in various regulations, i.e. annual TAC and Quota regulations and the stock specific multiannual management plans defined in the ToR.

STECF notes that it's evaluations related to the evaluation of the effects of the particular sub-articles 13.2.a-d of the Multiannual Cod Plan, in particular the presentation of fisheries specific fishing effort, landings and discards as well as estimations of partial fishing mortalities have been supported by data called by DG MARE from Member States and provided to STECF EWGs 12-06 and 12-12. Such specific data formats were defined by STECF during its spring plenary in 2012 (39th plenary). While Denmark, France, Germany, and Ireland submitted relevant information on the application of specific provisions of article 13 2.a-d, UK only provided figures of fishing effort by area and gear and only for the TAC year 2011, which is not fully compatible with the calendar year and thus was not used by the STECF EWG. STECF based its assignments of the articles 13 2a-d to the fisheries specific catch and effort data using national declarations provided as background documents.

STECF notes that all resulting fisheries parameters of various fishing effort regimes, including those defined for the outstanding Western Waters and Deep Sea regime evaluations are downloadable at the requested aggregation in the format of digital Appendixes to the present report at the working group's web page: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

The STECF EWG 12-12 carried out exploratory evaluations of spatio-temporal catchability patterns for the Baltic and the wider North Sea and noted that the resulting patterns of catchability in both management areas are to be considered provisional and should not be used as a basis for management advice. At present the catch per rectangle is derived from reported landings figures plus an estimate of discards. Catchability is expressed as an index, which represents the risk of an individual fish being caught. In general, it appears that the spatial extent of catchability is wider and more evenly distributed over the various statistical rectangles analysed, than that implied by the spatial distribution of catch and effort for the different fisheries.

STECF notes that the additional ToRs given to EWG 12-12 cover two major elements. The first element requests an evaluation of a particular method as proposed in STECF-12-13[1] to move from an F-based approach in Article 13 of the cod plan, to one based more directly on catch. STECF notes that Article 13 gives the MS the competence to monitor and to manage the partial Fs of the regulated gear groups in-year and requires the MS to justify the buy-back of fishing effort, in particular related to paragraph 13.2.c. STECF has previously commented that use of the fishing mortality rate approach critically depends on the availability of an assessment generating an estimate of fishing mortality. Furthermore, the use of this metric is somewhat 'removed' from the day to day experience of fishermen operating cod catch reduction schemes. STECF notes that the proposed catch based method is simple and theoretically, may work under certain conditions further explained in section 4.11 of the EWG 12-12 Report. Of prime importance is the need for a clear catch target for fishermen to work to and a requirement to fully account for all of their catch.

The second element of the additional ToR deals with catch options for Kattegat and the Irish Sea cod stocks in 2013. The STECF EWG did not provide catch options other than pointing to the provisions of the existing cod plan. However, the EWG 12-12 Report points out that in the specific case of the Kattegat cod stock, there is a good correlation between deployed effort and harvest rates for the main gear groupings (TR2 of DNK and SWE). While STECF has been unable to identify a direct causality between deployed effort and harvest rate, the observed correlation may indicate that a reduction in deployed effort of regulated gears may result in a reduction in fishing mortality (the effect of effort reductions in passive gears are difficult to estimate). A comprehensive STECF response to the Commission's request on catch options for cod in the Kattegat and the Irish Sea is provided in Section 7.7 of this report.

In the specific case of the Irish Sea cod, the provision of a catch option is more difficult given the available information from ICES. Furthermore, the effects of recent introductions of TR2 gears with improved selectivity should be evaluated and incorporated in any forecast but this is not presently possible. As a first step, STECF has made use of data provided in the EWG 12-12 report to provide a response to this request in Section 7.7 of this report.

Major findings arising from the effort regime evaluations conducted by the STECF EWG are summarized in the following sections, for each of the area reviews undertaken.

[1] Scientific, Technical and Economic Committee for Fisheries (STECF) - Management plans part 2 - changes to cod plans (STECF-12-13). (eds Simmonds E. J. & Millar, C.). 2012. Publications Office of the European Union, Luxembourg, EUR 25447 EN, JRC 73149, 82 pp.

Effort regime evaluation for the Baltic

STECF notes that fisheries-specific effort and catch (landings and discards) figures by Member States have been updated until and including 2011 and illustrated for both the Western and Eastern Baltic management areas as requested. The process was constrained by some incomplete data submissions in response to the 2012 DCF data call.

STECF notes that the request to estimate the uptake of permitted fishing effort could not be accomplished due to the fact that the data available were not appropriate. The EWG 12-12 has provided a recommendation regarding the specification of data required to undertake such an evaluation. STECF EWG 12-12 notes that if a fishing effort regime in the Baltic is to be maintained, it would be desirable to adopt and report more meaningful gear-specific measures of effective fishing effort that take into account vessel size and or engine power.

In area A (Sub-divisions 22-24), the decreasing trend in reported effort for regulated gear groups over the period 2002-2010, appears to have stabilised at a low level in 2011. Contrarily, the negative trend of gear groups not regulated by fishing effort continued in 2011. In area B (Subdivisions 25-28.2), the fishing effort of regulated and non-regulated gears increased in 2011 compared to the previous two years. In area C (Sub-divisions 29-32), which is not considered important for the management of cod fisheries, non-regulated gears appear to account for only a low proportion of overall cod catches from the area.

Overall, for the entire Baltic, discards of cod are estimated to be less than 10% by weight of the total cod catch. However, discard sample data are relatively poor and it is not clear how representative the estimate of less than 10% is of the true discard rate.

Significant correlations are observed between total fishing mortality of all effort regulated gears and fishing effort measured in kWdays at sea and also between fishery specific partial fishing mortalities and fishing effort in most fisheries. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures.

Effort regime evaluation for the Kattegat

STECF notes that all Member States fishing in this area have reported their effort data for 2011, including mesh size range category and derogations and the overall confidence in data coverage, data correctness and the results is high. All countries submitted effort data only for 2011, data for earlier years remained unchanged so there was no revisions to data previously submitted.

Fisheries in the Kattegat are predominantly trawl (TR2) fisheries and are almost exclusively conducted by Denmark and Sweden (86% and 13% of the total regulated effort in 2011 respectively). Beam trawls are prohibited.

There are two derogations in place in Kattegat for TR2, CPart 13 and CPart 11. Since 2010, all Danish fishing activities were performed under the cod plan's provision in article 13.2.c, while all German fishing in gear category TR2 since 2010 fell under the article 13.2.b. Only Sweden reported under the derogation article 11 in gear category TR2, achieving the <1.5% cod catch by using a sorting grid. This represented 61% of the Swedish TR2 effort in Kattegat 2011 and 16% of the total TR2 effort in the area. The Swedish sorting grid was until 2009 under the derogation IIA83b in the old cod recovery

plan (R (EC) 40/2008), and since it generates a catch composition that is very different from the TR2 'none' gear group it was decided to keep the old derogation in the tables by derogation of the present report. Both IIA83b and CPart11 are considered non-effort (unregulated) gears and are therefore not included in the effort regulated TR2 gear category in the tables and figures below (R (EC) No 1342/2008). The effort deployed by passive gears (GN1, GT and LL1) is relatively small, with a stable share of around 5% of the total regulated effort since 2005. The effort deployed by unregulated gear categories (including effort under the derogation CPart11) was 27% of the total effort in 2011.

According the ranked regulated gear groups' contributions to cod catch and landings in 2011, only the TR2 is estimated to exceed the level of the cumulative 20%.

STECF notes that information on fully documented fisheries FDF was only provided by Sweden and only for 2010. FDF fishing effort and catches appear negligible.

The estimated cod CPUE and respective effort transfer factors between donor and receiving regulated gear groups based on averages 2009-2011 are given in Table 5.3.1. Red cells have inadequate discard information supporting the catch estimate so that the conversion factor is unreliable. Yellow cells indicate sufficient sampling and green cells good sampling information.

Table 5.3.1. Effort transfer factors for different gear groupings

Kattegat									
	donor gear	receiving gear							
		GN1	GT1	LL1	TR1	TR2	TR3		CPUE
3a	GN1		1	1	0.529	0.822	1		74
3a	GT1	0.108		1	0.057	0.089	1		8
3a	LL1	0	0		0	0	1		0
3a	TR1	1	1	1		1	1		140
3a	TR2	1	1	1	0.643		1		90
3a	TR3	0	0	1	0	0			0

STECF notes that the correlations between the summed partial harvest rates for catch, landings and discards of the major fisheries and their estimated fishing efforts are highly significant. The partial harvest rates of the dominating Danish and Swedish TR2 fisheries also closely correlated with their specific effort estimates in kW days at sea. Only the Danish gill netters are lacking such correlation. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures. STECF notes however, that continued application of the effort regime under the provisions of the long-term management plan for cod stocks, is likely to lead to a significant reduction of fishing for regulated gear groups within a few years.

STECF notes that there are indications that the Danish TR2 fishery operating exclusively under Article 13.2.c has contributed to a reduction in harvest rate in 2011, mainly through a reduction in discards.

Effort regime evaluation for the Skagerrak, North Sea including 2EU and Eastern Channel

STECF notes that in this area, a substantial part of the effort is deployed by Non-European fleets (primarily Norway), which except for the part dealing with partial fishing mortalities by fishery are not accounted for in the EWG 12-12 Report. Norwegian fishing effort is reported to ICES (ICES, 2012).

Catch and effort data including special conditions in force since 2009 (CPart11 and CPart13) have been provided by all Member States with significant fishing activity in this area. As such, the data are considered to represent a complete account of fishing effort by regulated gears in the area as reported by national administrations.

Overall in 2011, regulated gears represented 69% of the total effort in area 3b. The main gears in management area 3b are demersal trawls/seines and beam trawls (51% and 42% of total 2011 regulated effort respectively). Nominal effort by both of these gear types has decreased since 2003.

STECF notes that only TR1 and TR2 gears exceed the maximum levels of fishing effort (kW days at sea) available each year as prescribed by the cod plan. This reflects the fact that it is the fisheries using these gears that have utilised the provisions of Article 13 and bought back fishing effort. The other gears remain at or significantly below their maximum available levels.

According to the ranked regulated gear groups' contributions to cod catch and landings in 2011, only the TR1 and TR2 are estimated to exceed the level of the cumulative 20%.

STECF notes that in 2011, fully documented fisheries FDF still represent a small proportion of the total effort (4.9%), but the proportion has increased compared to previous years All countries operating FDF contributed to this increase. Cod catches were recorded in fisheries using TR1, TR2, GN1 and Pots, but most catches (95.3% of the total FDF cod catches) were made by vessels using the TR1 gear. In total, 25% of cod catches by EU vessels were taken during FDF trials; 41%, 35%, 30% and 20% of English, Scottish, Danish and Dutch cod catches respectively.

The estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups are given in Table 5.3.2. Red cells have inadequate discard information supporting the catch estimate so that the conversion factor is unreliable. Yellow cells indicate sufficient sampling and green cells good sampling information.

Table 5.3.2. Effort transfer factors for different gear groupings

	BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3	CPUE
3b BT1		1.000	0.197	1.000	0.599	0.190	0.693	1	190
3b BT2	0.295		0.058	0.438	0.177	0.056	0.204	1	56
3b GN1	1.000	1.000		1.000	1.000	0.965	1.000	1	964
3b GT1	0.674	1.000	0.133		0.404	0.128	0.467	1	128
3b LL1	1.000	1.000	0.329	1.000		0.317	1.000	1	317
3b TR1	1.000	1.000	1.000	1.000	1.000		1.000	1	999
3b TR2	1.000	1.000	0.284	1.000	0.864	0.274		1	274
3b TR3	0.053	0.179	0.010	0.078	0.032	0.010	0.036		10

STECF notes that the EWG 12-12 report presents, by major fisheries and Member States, cod partial fishing mortalities derived from the fishing mortality estimated by ICES (2012), the detailed STECF estimates of landings and discards volumes and the ICES estimate of total removals. Discard mortality is generally high but has been reduced significantly since 2010.

STECF notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are highly significant although this does not necessarily indicate a causal relationship. Similarly, the partial Fs resulting from catches of Danish gill nets, TR2 from Denmark and TR1 from Germany are correlated significantly with fishing effort. Conversely, correlations between summed partial Fs for discards and effort and for catches and effort are insignificant (the latter just above the threshold $p \leq 0.05$). Furthermore, the correlation between fishing effort in kW days and partial F for the major Scottish and Danish cod fisheries using TR1 gears are not significant. Overall, this indicates that attempts to control fishing mortality by managing fishing effort in units of kWdays across the broad range of fisheries and countries operating in this area may not be appropriate. However, for specific fisheries, effort management may be useful as an auxiliary measure to catch constraints and technical measures but case-specific investigations need to be undertaken to establish whether controlling effort will deliver the intended changes in fishing mortality on cod.

STECF notes that there are indications of reductions in partial Fs on cod in 2011 for the Scottish TR1 and TR2 fisheries operating under the provisions of article 13.2.b and c of the cod plan, mainly through reductions in discard component of the catch by those fisheries. The German and French fisheries operating under the provision of article 13.2.b are either negligible or have reduced their effect in cod fishing mortalities substantially.

The STECF EWG 12-12 Report also provides partial Fs of fisheries using effort regulated gears for haddock 3an4, saithe 3an 4 (6 not included), as well as plaice and sole in 4.

STECF addressed an additional Commission request for information on some specific discard rates. STECF notes that the required discard information was in some cases scarce and inadequate for providing reliable 2011 discard estimates for specific fisheries with additional quota allocations. Notwithstanding this caveat, the landings and discards for cod by the regulated gear for the following countries and areas are summarised below:

Table 5.3.3: Specific discard rates.

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	2EU & 4	UK (incl SCO)	TR1	11145.504	1402.372	0.112

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	4	DNK	TR1	2789.625	225.694	0.075

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	3an	DNK	TR2	938.181	480.905	0.339

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	3an & 4	DNK	GN	2252.196	unknow	unknow

Effort regime evaluation for the West of Scotland

STECF notes that a full review of the effects of the fishing effort regime as the requested for the West of Scotland is not possible owing to the so called 'management line' which delimits the cod recovery zone at its western boundary. The management line cuts through units for data collection and separate fisheries parameters within and without the cod recovery zone are not available

The cod fisheries West of Scotland are primarily otter trawl fisheries. Beam trawls and static gears are hardly used. However Spanish fisheries data has not been made available for division VIa since 2010. In terms of kWdays, reported effort of regulated gears in 2011 was 50% lower than that in 2003 and 14% lower than in 2010.

The most important category in terms of cod catch and landings is TR1 with a three year average of 94-95% of the VIa cod catch (and landings) total by weight. The second most important gear category is TR2. The overall discard rate of cod (by weight) has increased in years subsequent to 2003. The rate of discarding in the TR1 gears has been between 70 and 90% over the years 2008-2011. Catches of cod by TR2 'none' have been negligible since 2009. Discard information on *Nephrops* for any gear and for all other species for non-trawl gears was not available for this report. Cod CPUE values have increased considerably for the TR1 gear type since 2005.

The estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups is given in Table 5.3.4. Red cells have inadequate discard information supporting the catch estimate so that the conversion factor is unreliable. Yellow cells indicate sufficient sampling and green cells good sampling information.

Table 5.3.4. Effort transfer factors for different gear groupings

	donor gear	receiving gear							
		BT1	BT2	GN1	LL1	TR1	TR2		CPUE
3d	BT1		1	0.1	1	0.006	0.077		1
3d	BT2	1		0.1	1	0.006	0.077		1
3d	GN1	1	1		1	0.058	0.769		10
3d	LL1	1	1	0.1		0.006	0.077		1
3d	TR1	1	1	1	1		1		171
3d	TR2	1	1	1	1	0.076			13

Fishing effort deployed and respective catches taken under the FDF scheme have been received and are presented in the EWG 12-12 Report (Section 5.4.7).

STECF notes that the correlations between the summed partial Fs for catches and discards of the regulated fisheries and their estimated fishing efforts appear to be negative but are not statistically significant. The correlation between the summed partial Fs for landings and fishing effort is, however significant. The partial Fs of discards from the Scottish TR1 working under the cod plan article 13.2.b-c-d are recently increasing and dominating the fishing mortality. There are no indications that the Scottish TR1 fishery working under the article 13.2.b-c-d have contributed to a reduction in fishing mortality of cod.

STECF is unable to determine the reason why there is an absence of any significant relationship between F and effort for the greatest cod contributors to cod catches from VIa. Nevertheless from the information reported by member States, the management measures in place in VIa have not been successful in achieving a reduction in fishing mortality.

Effort regime evaluation for the Irish Sea

STECF notes that in terms of cod catches, the TR2 category (70-99mm mesh sizes) dominates, and that effort by this category was relatively stable between 2003 and 2008. An effort reduction occurred in 2009, coinciding with the introduction of the current cod plan, since then effort has remained at the reduced level. The majority of TR2 effort is now carried out under Article 13 of Coun. Reg. 1342/2008 (CPart13; ~80-99% of TR2 effort). A small amount of effort previously incorporated in CPart13 became exempt from the cod plan effort restrictions under Article 11 of the regulation (CPart11) in 2010 (3%), doubling in 2011 to 6%.

STECF notes that cod landings have continued to follow the declining trend which began in 2009. In relation to overall landings by species, *Nephrops* dominate Irish Sea landings and have been above 9000t since 2007, peaking in 2008 and 2011 with over 10000t. Discard information available within the Irish Sea is incomplete. Discard data are not available for all species and/or years within each gear grouping. In the absence of reliable discard data, STECF is unable to the extent to which the observed decline in landings is due to increased discarding to comply with year-on-year reductions in TAC or is a consequence of a decline in the fishable stock. TR2 and BT2 have the most complete data particularly in more recent years, for species like cod, haddock, hake, plaice, rays, and whiting. Over the majority of the period, TR1 land the greatest proportion of cod (~40% of the total landing), however this changed in 2011 when the proportion dropped to 35%, following a declining trend, to just below that of the TR2 gear. This placed TR2 as the top ranked gear in 2011 although demonstrating little change to 2010 proportions.

The estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups is presented in Table 5.3.5. Red cells have inadequate discard information supporting the catch estimate so that the conversion factor is unreliable. Yellow cells indicate sufficient sampling and green cells good sampling information.

Table 5.3.5. Effort transfer factors for different gear groupings

	donor gear	receiving gear							
		BT2	GN1	GT1	LL1	TR1	TR2		CPUE
3c	BT2		0.02	0.12	1	0.11	1		73
3c	GN1	1		1	1	1	1		3094
3c	GT1	1	0.20		1	0.96	1		617
3c	LL1	0.01	0	0.002		0.002	0.01		1
3c	TR1	1	0.21	1	1		1		640
3c	TR2	0.95	0.02	0.11	1	0.11			69

STECF notes that there were no Fully Documented Fisheries (FDF) reported as operating within the Irish Sea in 2011.

STECF notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are non-significant. The partial Fs of most Member State fisheries using regulated gears are not significantly correlated with their specific effort estimates. STECF notes that the lack of comprehensive discard estimates prevents reliable conclusions and should be considered when assessing management risks.

Effort regime evaluation for the Celtic Sea

For the Celtic Sea, the review of trends in fisheries specific effort and catches is presented in line with the standard gear aggregations utilised in the presentation of the multi-annual cod plan currently applying in the 4 areas described previously. This allows managers to evaluate the data with regard to a theoretical extension of the cod plan to include the Celtic Sea. The Celtic Sea is defined into two management areas, i.e. ICES Sub-divisions 7bcefghjk and ICES Sub-divisions 7fg.

Trends in fishing effort for the sensitive cod gears and non-regulated gears are given in the EWG 12-12 Report. Spanish data are not included as no data have been submitted. The demersal fisheries are dominated by the gears TR1, TR2 and BT2. Their effort measured in kWdays at sea remained stable during 2003-2007 and were reduced by about 20 % thereafter.

Discard information is scarce precluding reliable estimation of CPUE, however, estimates of LPUE of cod were available showing a significant increase in 2011.

STECF notes that the correlations between the summed partial F of catches and their specific effort estimates in kW days at sea over the main fisheries (effort regulated fisheries in the cod plan) are hardly significant in the entire Celtic Sea area (Cel 1 :7bcefghjk) for the main fisheries catching Cod (ie. French TR1 and TR2, and Irish TR1). However, these relations become significant between catches and effort for French TR1 and TR2 and remain significant for the Irish TR2 and Belgium TR2 when the area is reduced to the ICES subdivisions 7fg (Cel2). While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide an auxiliary measure to catch constraints and technical measures in the Cel2 area.

Effort regime evaluation for Southern hake and Norway lobster

STECF notes that the analyses presented in the EWG report are considered insufficient to fully address the specific ToR due to the unavailability of Spanish data for 2010 and 2011. Spain did not respond to the DCF data calls for fishing effort evaluations in 2011 and 2012. In addition, Portuguese discard data were resubmitted in 2012 in a format which is obviously consistent with DCF but inconsistent with the data formats and aggregation of the data calls. Therefore, discard information provided for earlier years was deleted from the data bases and could no longer be used.

Notwithstanding these difficulties the available fisheries specific parameters aggregated according to the definitions of gear groups in the Annex IIB of the annual TAC and Quota Regulations are given in the EWG report. STECF considers that the information presented is not reliable and is not representative of the fisheries and do not form a reliable basis for management decisions.

STECF notes that the fishing effort regime is by units of days at sea per vessel. STECF EWG 12-12 noted that if a fishing effort regime with regards to Southern hake and Norway lobster is to be

maintained, an appropriate measure of effective fishing effort to account for vessel size/power and gear effectiveness should be adopted.

Effort regime evaluation for the Western Channel

STECF notes the great majority of fishing effort deployed in the Western Channel is not regulated, while the two regulated gear groups, the beam trawls and the static nets, constitute a relatively small component of the overall effort deployed in this area. The reported effort in kWdays at sea of gear groups regulated by fishing effort appears to have been stable since 2009 after a major reduction in 2008.

STECF notes that sole landings are dominated by effort regulated beam trawls (61%), non-effort regulated gears, (32%, mainly otter trawl gears), and static nets (7%). STECF EWG 12-12 reiterates its observation that a relatively high percentage of sole is landed by non-effort regulated gears.

STECF notes that discard information in the Western Channel is scarce. The estimated landings and discards for sole by the regulated gear 3a (beam trawl) by UK are given in Table 5.3.6.

Table 5.3.6: Estimated landings and discards of sole in the Western Channel (VIIe)

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIC	sol	2011	7e	ENG	3a	349.807	21.961	0.059

STECF notes that the correlations between the summed partial Fs for landings of the major fisheries and their estimated fishing efforts are highly significant for the period 2005-2011. The correlation analysis excludes the years 2003 and 2004 when the data available to STECF represented only about 50% of the landings reported to ICES. The partial Fs of Belgian and English fisheries using the regulated gear 3a are closely correlated with their specific effort estimates in kW days at sea. However for the French regulated fisheries (3a and 3b), which represent just about 10% of the sole landings, the correlation between F and effort (kWdays) is statistically not significant. While good correlation does not always mean 'cause and effect', the results here suggest that management of fishing mortality by fishing effort in units of kWdays may provide a useful auxiliary measure to catch constraints and technical measures.

STECF notes that in 2011 the current fishing effort regime (days at sea per vessel) does not appear to constrain the fisheries, which have only used between 10% and 79% of the days at sea available. STECF EWG 12-12 notes that if a fishing effort regime in the Western Channel is to be maintained, an appropriate measure of effective unit of fishing effort to account for vessel size/power and gear effectiveness should be considered in any revision of the management plan for Western Channel sole. STECF concludes that fishing effort measured in kWdays at sea may represent a more appropriate measure for mobile gears, given the presented significant correlation between fishing mortality and fishing effort in kWdays at sea. STECF also considers that the lack of discard information in the assessment and forecast of fishing opportunities should be considered when assessing management risks.

Effort regime evaluation for the Western Waters and Deep Sea

In accordance with its ToR STECF presents trends in effort, catches and CPUE of defined fisheries (major gear groups) for 18 management areas within the conventional areas of ICES and CECAF. The EWG experienced extreme difficulties in preparing these data and the interpretation of them is confounded by uncertainty in the western waters data summaries for some member states most notably Portugal, France and Spain. Since these countries operate extensively in the Western Waters areas and are likely to contribute a significant proportion to the overall effort covered by respective regulations, the data shortfall implies that overall effort figures remain unreliable. STECF also notes that discard information is often scarce.

Effort within the Deep sea and Western waters has been compiled for kW*days-at-sea, GT*days-at-sea, and numbers of vessels. Within the EWF 12-12 Report, the focus is on kW*Days at sea. Information on GT*days at sea and numbers of vessels is available via the website: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

Notwithstanding the shortfalls in reported STECF concludes that effort for a number of gear groups (particularly otter trawls) and countries has declined in recent years. This is most evident in the more northerly areas. The information available also indicates that increases in longliner effort have occurred in a number of areas.

STECF notes that the information on landings quantity and composition is very detailed but in general shows reductions in the landings of a number of species across the range of areas reported. One exception is the landings of certain deep water sharks in the more southerly ICES areas. The combination of questionable effort data and absence of catch information renders the calculation of aggregated CPUEs from deep sea and western waters data rather pointless at present. However, all trends in national landings, effort and LPUE data are available via the website and can be queried further for specific needs: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

Effort regime evaluation for the Bay of Biscay

STECF notes that all analyses and presented trends exclude Spanish data, as Spain did not respond to the DCF data call for fishing effort regime evaluations. The resulting trends in fishing effort and landings need to be interpreted bearing in mind that the Spanish data are not considered and that discard information is scarce and dubious in certain cases. In general the trends indicated by the reported data and information may not be wholly representative.

STECF notes that the multiannual plan for the sustainable exploitation of the stock of sole in the Bay of Biscay (R (EC) 388/2006) stipulates provisions regarding maximum annual fishing capacity of the vessels holding the special fishing permit per Member State. STECF EWG 12-12 notes that only Belgium has provided the requested annual capacity data. STECF EWG 12-12 is therefore unable to evaluate the fishing effort regime in the Bay of Biscay, i.e. mainly to compare the trend in authorized fishing capacity with the trend in fishing mortality.

STECF notes that the French data submission on fishing effort in kWdays at sea and French landings consider special fishing permits only since 2010. STECF is therefore unable to fully evaluate the trend and uptake of the special fishing permit. STECF notes that the Belgian beam trawl fisheries have been working exclusively under the provision of the special fishing permit since 2006, and that the French gill netters, trammel netters and otter trawlers are reported to be operating with the permit since 2010 at a rate of around 30, 10 and 50% of vessels, respectively. The vessels holding the permits appear to be taking the great majority of sole landing in 2010 and 2011.

STECF notes that the correlations between the summed partial Fs for landings (discard data are scarce) of the major fisheries and their estimated fishing efforts are in general not significant (except for the trammel fishery of France). Hence it STECF is unable to determine whether management of fishing effort in units of kW days is likely to be an effective auxiliary measure to catch constraints and technical measures to control fishing mortality. STECF notes that the lack of discards prevents reliable conclusions to be drawn and this should be taken into account when assessing management risks.

STECF Recommendations

In addition to all of the foregoing evaluation work, STECF has the generic task of reviewing the DCF data call in 2012 to support fishing effort regime evaluations. STECF has two technical recommendations to DG MARE regarding the forthcoming DCF data call 2013 to support fishing effort regime evaluations as compared to the one issued in 2012.

First recommendation

STECF notes that the DCF data call in 2012 to support fishing effort regime evaluations is not fully consistent with the ToR. Thus, the EWG could not fully address the tasks for the Baltic regime, i.e. to assess the fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2007). STECF recommends that in the Effort Data Call for 2013, the Table D should include an additional fishing effort parameter called “fishing activity” in units of days. The additional parameter shall be specific by country, year, vessel-length, area (A or B) and gear (regulated=REGGEAR or un-regulated=NONGEAR).

Second recommendation

STECF EWG 12-12 notes that FDF has been implemented for sole in the Western Channel in 2012 (Council Reg N 43/2012, EU TAC and Quota regulation for 2012). STECF EWG 12-12 recommends to DG MARE that, if catches and effort under FDF in the Western Channel are to be analysed in 2013, the respective DCF fishing effort data call shall consider an additional specific code in Appendix 6 called “FDFIIC”.

REPORT TO THE STECF

EXPERT WORKING GROUP ON
FISHING EFFORT REGIME EVALUATIONS
PART 2 (EWG-12-12)

BARZA D'ISPRA, 24-28 SEPTEMBER 2012

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

1 EXECUTIVE SUMMARY

STECF EWG 12-12 notes that the present report repeals the report of its first meeting STECF EWG 12-06 (11-15 June 2012 in Lisbon), published earlier this year as STECF report and entitled "Scientific, Technical and Economic Committee for Fisheries (STECF) - Evaluation of Fishing Effort Regimes in European Waters Part 1 (STECF-12-09). Such earlier report from the first meeting was corrected, updated and supplemented with outstanding tasks and additional Terms of Reference.

The added value derived from the deliverables of STECF EWG 12-12 in the present report are related to

- addition of the effort regime evaluations related to Western Waters and the Deep Sea (section 5.9).
- updated section 5.3 on the effort regimes in the wider North Sea (Skagerrak, North Sea, 2 EU and Eastern Channel) due to Dutch discard data corrections and additional effort data submission.
- provision of CPUE and LPUE estimates by fisheries and Member States for all regime evaluations through digital appendixes to the report. They are available at the meeting's web site: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12
- provision of updated conversion factors of fishing effort transfers between donor and receiving gear groups eligible to the cod plan in the light of the STECF comments during the 2012 summer plenary (40th plenary).
- provision of updated estimates of partial fishing mortalities generated by Member States fisheries in relation to ICES estimates of total removals or catch.
- provisional geographical catchability analyses for the cod stocks in the Baltic and the wider North Sea.

STECF EWG 12-12 notes that it has extensively addressed the ToR regarding the fishing effort regime evaluations in the

1. Eastern and Western Baltic,
2. the Kattegat,
3. the Skagerrak, North Sea, European waters in ICES Div.2 and the Eastern Channel,
4. to the West of Scotland,
5. Irish Sea,
6. Celtic Sea,
7. Atlantic waters off the Iberian Peninsula,
8. Western Channel,
9. Western Waters and Deep Sea
10. and the Bay of Biscay.

STECF EWG 12-12 tasks have been supported by the DCF fishing effort data call in 2012. STECF EWG 12-12 notes a general improvement in data completeness and quality as well as compliance with dead lines regarding Member States' data provisions. However, STECF EWG 12-12 suffered again from lack, delays, incompleteness and erroneous data submissions and re-submission. Details about the DCF data call definitions, data quality in 2012 and significant shortfalls as identified by JRC and the experts contributing to the working group are summarized in section 4.

STECF EWG 12-12 notes that resulting aggregations of fisheries parameters, such as landings, discard estimates and fishing effort are consistent with the fisheries definitions in various regulations, i.e. annual TAC and Quota regulations and the stock specific multiannual management plans defined in the ToR.

STECF EWG 12-12 notes that it's evaluations related to the evaluation of the effects of the particular sub-articles 13.2.a-d of the Multiannual Cod Plan, in particular the presentation of fisheries specific fishing effort, landings and discards as well as estimations of partial fishing mortalities have been supported by data called by DG MARE from Member States and provided to STECF EWGs 12-06 and 12-12. Such specific data formats were defined by STECF during its spring plenary in 2012 (39th plenary). While Denmark, France, Germany, and Ireland submitted relevant information on the application of specific provisions of article 13 2.a-d, UK did provide only figures of fishing effort by area and gear and only for the TAC year 2011, which is not fully compatible with the calendar year and thus was not used by the STECF EWG. STECF EWG 12-12 did also base its assignments of the articles 13 2a-d to the fisheries specific catch and effort data using national declarations provided as background documents.

STECF EWG 12-12 notes that all resulting fisheries parameters of various fishing effort regimes, including the ones defined for the outstanding Western Waters and Deep Sea regime evaluations, are downloadable at the requested aggregation in the format of digital Appendixes to the present report at the working group's web page: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

The STECF EWG 12-12 initiated provisional evaluations regarding spatio-temporal catchability patterns for the Baltic and the wider North Sea. STECF EWG 12-12 notes that the resulting patterns of catchability in these specific management areas represent case studies and do not form the basis for any management advice. Catchability is interpreted as an index of mortality by individual fish, rather than by a given stock unit. It appears that the geographical patterns of catchability, the risk for an individual fish being caught, is wider and more evenly distributed over the various statistical rectangles analysed than the fisheries as indicated from the patterns of their catch and effort estimates.

STECF EWG 12-12 notes that the additional ToRs are covering two major elements. The first element requests an evaluation of a particular method as proposed by STECF 12-13 EWG 12-07 to move from an F based approach to a catch based approach in Article 13 of the cod plan, which is interpreted as a proposal to change Article 13. STECF EWG 12-12 notes that Article 13 does require and give the MS the competence to monitor and to manage the partial Fs of the regulated gear groups in year to justify buying back of fishing effort, in particular related to paragraph 13.2.c. STECF 12-12 notes that the proposed method is simple and may theoretically work under certain conditions further explained in section 4.11.

The second element of the additional ToR deals with catch options for Kattegat and the Irish Sea cod stocks in 2013. Given the information available, STECF EWG 12-12 is unable to provide catch options in addition to the provisions of the cod plan and its recent amendments. STECF EWG 12-12 notes that in the specific case of the Irish Sea cod, the consequences of adaptations in landings and effort cannot be quantified, so measures may be interpreted as precautionary. STECF EWG 12-12 advises also to evaluate the implementation of improved cod selectivity in TR2 fisheries operating in the Irish Sea through existing technical options. STECF EWG 12-12 notes that in the specific case of the Kattegat cod stock, there is a good correlation between major fisheries effort and harvest rates (TR2 of DNK and SWE), which indicates that further decreases in effort of regulated gears may have the effect to decrease fishing mortality. However, STECF EWG 12-12 notes that the effects of effort reductions of passive gears are difficult to be estimated.

Major findings regarding effort regime evaluations as derived by STECF EWG 12-12 are summarized in the following sections, specifically for each of the reviews undertaken.

Effort regime evaluation for the Baltic

STECF EWG 12-12 notes that fisheries specific effort and catch (landings and discards) figures by Member States have been updated until and including 2011 and illustrated for the Western as well as the Eastern Baltic management areas as requested and constrained by data submissions in response to the 2012 DCF data call.

STECF EWG 12-12 notes that the specific task to estimate the uptake of allowed fishing effort could not be accomplished due to the fact that the available data available are not compatible. The EWG 12-12 has provided a recommendation regarding the required data specification to allow such evaluation. STECF EWG 12-12 notes that if a fishing effort regime in the Baltic is to be maintained, it shall consider an appropriate measure of effective unit of fishing effort to account for vessel size/power and gear effectiveness.

In area A (Sub-divisions 22-24), the decreasing trend in gear groups regulated by fishing effort appears to be halted at a low level in 2012. Contrarily, the negative trend of gear groups not regulated by fishing effort continued in 2011. In area B (Subdivisions 25-28.2), the fishing effort of regulated and non-regulated has been slightly increasing from a low level in 2011. Area C (Sub-divisions 29-32) is considered not important for the management of cod fisheries. The contribution of non-regulated gears to cod catches appears generally low, as the contribution of discards is also estimated to range below 10%.

The close correlations between fishing mortality and fishing effort measured in kWdays at sea as well as between partial fishing mortalities and the specific fishing effort by fisheries, emphasises the fact that effective fisheries management by fishing effort in units of kWdays at sea appears possible, also as an auxiliary measure to catch constraints and technical measures.

Effort regime evaluation for the Kattegat

STECF EWG 12-12 notes that all Member States fishing in this area have reported their effort data for 2011, including mesh size range category and derogations and the overall confidence in the results is high. All countries submitted effort data only for 2011, so there was no relative change from earlier submissions.

Fisheries in the Kattegat are almost exclusively conducted by Denmark and Sweden (86% and 13% of the total regulated effort in 2011 respectively) using predominantly trawls and primarily in the gear class TR2. Beam trawls are forbidden.

There are two derogations in place in Kattegat for TR2, CPart13 and CPart11. Since 2010, all Danish fishing activities were performed under the cod plan's provision in article 13.2.c, while all German fishing in gear category TR2 since 2010 fell under the article 13.2.b. Only Sweden reported under the derogation article 11 in gear category TR2, achieving the <1.5% cod catch by using a sorting grid. This represented 61% of the Swedish TR2 effort in Kattegat 2011 and 16% of the total TR2 effort in the area. The Swedish sorting grid was until 2009 under the derogation IIA83b in the old cod recovery plan (R (EC) 40/2008), and since it generates a catch composition that is very different from the TR2 'none' gear group it was decided to keep the old derogation in the tables by derogation of the present report. Both IIA83b and CPart11 are considered non-effort (unregulated) gears and are therefore not included in the effort regulated TR2 gear category in the tables and figures below (R (EC) No 1342/2008). The effort deployed by passive gears (GN1, GT and LL1) is relatively small, with a stable share of around 5% of the total regulated effort since 2005. The effort deployed by unregulated gear categories (including effort under the derogation CPart11) was 27% of the total effort in 2011.

According the ranked regulated gear groups' contributions to cod catch and landings in 2011, only the TR2 is estimated to exceed the level of the cumulative 20%.

STECF EWG notes that information on fully documented fisheries FDF was only provided by Sweden and only for 2010. FDF fishing effort and catches appear negligible.

STECF EWG 12-12 presents the estimated cod CPUE and respective effort transfer factors between donor and receiving regulated gear groups based on averages 2009-2011. Red cells are indicated to be imprecise due to lack of adequate discard information. Yellow cells indicate sufficient sampling and green cells good sampling information.

Kattegat									
	donor gear	receiving gear							
		GN1	GT1	LL1	TR1	TR2	TR3		CPUE
3a	GN1		1	1	0.529	0.822	1		74
3a	GT1	0.108		1	0.057	0.089	1		8
3a	LL1	0	0		0	0	1		0
3a	TR1	1	1	1		1	1		140
3a	TR2	1	1	1	0.643		1		90
3a	TR3	0	0	1	0	0			0

STECF EWG 12-12 notes that the correlations between the summed partial harvest rates for catch, landings and discards of the major fisheries and their estimated fishing efforts are highly significant. The partial harvest rates of the dominating Danish and Swedish TR2 fisheries also closely correlated with their specific effort estimates in kW days at sea. Only the Danish gill netters are lacking such correlation. This indicates that effective fisheries management by fishing effort in units of kWdays at sea appears possible, also as an auxiliary measure to catch constraints and technical measures.

STECF EWG 12-12 notes that there are indications that the Danish TR2 fishery operating exclusively under Article 13.2.c has contributed to a reduction in harvest rate in 2011, mainly through a reduction in discards.

Effort regime evaluation for the Skagerrak, North Sea including 2EU and Eastern Channel

STECF EWG 12-12 notes that in this area, a substantial part of the effort is deployed by Non-European fleets (primarily Norway); this part is not accounted for in this report, except for the part dealing with partial fishing mortalities by fisheries. Norwegian fishing effort is reported to ICES (ICES, 2012)

Catch and effort data including special conditions in force since 2009 (CPart11 and CPart13) have been provided by all Member States with significant fishing activity in this area. As such, the data are considered to represent a complete account of fishing effort by regulated gears in the area as reported by national administrations.

Overall in 2011, regulated gears represented 69% of the total effort in area 3b. The main gears in management area 3b are demersal trawls/seines and beam trawls (51% and 42% of total 2011 regulated effort respectively). Nominal effort by both of these gear types has decreased since 2003.

STECF EWG 12-12 notes that only TR1 and TR2 gears exceed the maximum levels of fishing effort in kW days at sea. The other gears remain at or significantly below their maximum levels.

According the ranked regulated gear groups' contributions to cod catch and landings in 2011, only the TR1 and TR2 are estimated to exceed the level of the cumulative 20%.

STECF EWG 12-12 notes that in 2011, fully documented fisheries FDF still represent a small proportion of the total effort (4.9%), but it's increasing. All FDF countries contributed to this increase. Cod catches were recorded in fisheries using TR1, TR2, GN1 and Pots, but most catches (95.3% of total FDF cod catches) were whilst vessels were using the TR1 gear. In total, 25% of cod catches by EU vessels were taken during FDF trials; 41%, 35%, 30% and 20% of English, Scottish Danish and Dutch cod catches respectively.

STECF EWG 12-12 presents the estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups. Red cells indicate imprecise values due to lack of adequate discard information. Yellow cells indicate sufficient sampling and green cells good sampling information.

	BT1	BT2	GN1	GT1	LL1	TR1	TR2	TR3	CPUE
3b BT1		1.000	0.197	1.000	0.599	0.190	0.693	1	190
3b BT2	0.295		0.058	0.438	0.177	0.056	0.204	1	56
3b GN1	1.000	1.000		1.000	1.000	0.965	1.000	1	964
3b GT1	0.674	1.000	0.133		0.404	0.128	0.467	1	128
3b LL1	1.000	1.000	0.329	1.000		0.317	1.000	1	317
3b TR1	1.000	1.000	1.000	1.000	1.000		1.000	1	999
3b TR2	1.000	1.000	0.284	1.000	0.864	0.274		1	274
3b TR3	0.053	0.179	0.010	0.078	0.032	0.010	0.036		10

The STECF EWG 12-12 presents partial fishing mortalities by major fisheries and Member States in relation to the estimated fishing mortality by ICES (2012) and the landings and discards volumes in relation to the estimated total catch for the year available. Discard mortality is generally high but has been reduced significantly since 2010.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are highly significant, but insignificant between catches (just above the threshold $p \leq 0.05$) and discards. The partial Fs resulting from catches of Danish gill nets, TR2 from Denmark and TR1 from Germany are correlated significantly with fishing effort. The major Scottish and Danish cod fishery using TR1 gears do not display a significant coincidence between their partial F and fishing effort. Overall, this indicates that effective fisheries management by fishing effort in units of kWdays at sea may be possible, also as an auxiliary measure to catch constraints and technical measures. However, management of fishing effort may be difficult at a national level and requires further investigation.

STECF EWG 12-12 notes that there are indications of reductions in partial Fs from catches of the Scottish TR1 and TR2 fisheries in 2011 operating under the provisions of article 13.2.b and c of the cod plan, mainly caused by Fpar reductions in the discards of these particular fisheries. The German and French fisheries operating under the provision of article 13.2.b are either negligible or have reduced their effect in cod fishing mortalities substantially.

STECF EWG 12-12 also provides partial Fs of fisheries using effort regulated gears for haddock 3an4, saithe 3an 4 (6 not included), as well as plaice and sole in 4, respectively.

STECF EWG 12-12 notes that discard information is often scarce and inadequate to support provision of the requested 2011 discard estimates for specific fisheries with additional quota allocations. The landings and discards for cod by the regulated gear for the countries and areas are estimated as:

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	2EU & 4	UK (incl SCO)	TR1	11145.504	1402.372	0.112

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	4	DNK	TR1	2789.625	225.694	0.075

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	3an	DNK	TR2	938.181	480.905	0.339

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIA	cod	2011	3an & 4	DNK	GN	2252.196	unknow	unknow

Effort regime evaluation for the West of Scotland

STECF EWG 12-12 notes that the so-called management line to the West of Scotland, which delimits the cod recovery zone at its western boundary, prevents a full review of the fishing effort regime as the requested and analysed data are not specific to separate the fisheries parameters between within and without the cod recovery zone.

The fishery West of Scotland is primarily an otter trawl fishery; beam trawls and static gears are hardly used. However Spanish data is not available for division VIa since 2010. In terms of kWdays recorded effort of regulated gears in 2011 was 50% lower than that in 2003 and 14% lower than in 2010. Without Spanish data the trend in longline (LL1) effort is uncertain but it is still the most important gear type after TR gears in this area.

The most important category in terms of cod catch and landings is TR1 with a three year average of 94-95% of the VIa cod catch – and landings - total by weight. The second most important gear category is TR2. The overall discard rate of cod (by weight) has increased in years subsequent to 2003. The rate of discarding in the TR1 gears has been between 70 and 90% in 2008-2011. Catches of cod by TR2 ‘none’ have been negligible since 2009. Discard information on Nephrops for any gear and for all other species for non-trawl gears was not available for this report. Cod CPUE values have increased considerably for the TR1 gear type since 2005.

STECF EWG 12-12 presents the estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups. Red cells indicate imprecise values due to lack of adequate discard information. Green cells indicate well representative sampling.

	donor gear	receiving gear							
		BT1	BT2	GN1	LL1	TR1	TR2		CPUE
3d	BT1		1	0.1	1	0.006	0.077		1
3d	BT2	1		0.1	1	0.006	0.077		1
3d	GN1	1	1		1	0.058	0.769		10
3d	LL1	1	1	0.1		0.006	0.077		1
3d	TR1	1	1	1	1		1		171
3d	TR2	1	1	1	1	0.076			13

Fishing effort deployed and respective catches taken under the FDF scheme have been received and are presented.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for catches and discards of the regulated fisheries and their estimated fishing efforts are not statistically significant or significant but negative. The correlation between the summed partial Fs for landings and fishing effort are significant. The partial Fs of discards from the Scottish TR1 working under the cod plan article 13.2.b-c-d are recently increasing and dominating the fishing mortality. There are no indications that the Scottish TR1 fishery working under the article 13.2.b-c-d have contributed to a reduction in fishing mortality of cod. The lack of significant relationships between F and effort for the greatest cod contributors to cod catches indicates that kWdays at sea may not be an appropriate auxiliary measure to catch constraints and technical measures.

Effort regime evaluation for the Irish Sea

STECF EWG 12-12 notes that the TR2 category (70-99mm mesh sizes) dominates, and effort had been relatively stable between 2003 and 2008. An effort reduction occurred in 2009, coinciding with the introduction of the current cod plan, since then effort has remained at the reduced level. The majority of TR2 effort is now carried out under Article 13 of Coun. Reg. 1342/2008 (CPart13; ~80-99% of TR2 effort). A small amount of effort previously incorporated in CPart13 became exempt from the cod plan effort restrictions under Article 11 of the regulation (CPart11) in 2010 (3%), doubling in 2011 to 6%.

STECF EWG 12-12 notes that cod landings have continued to follow the declining trend which began in 2009. In relation to overall landings by species, Nephrops dominate Irish Sea landings and have been above 9kt since 2007, peaking in 2008 and 2011 with over 10kt. Discard information available within the Irish Sea is incomplete. Discard data is not available for all species and/or years within each gear grouping. TR2 and BT2 have the most complete data particularly in more recent years, for species like cod, haddock, hake, plaice, rays, and whiting. Over the majority of the period, TR1 land the greatest proportion of cod (~40%), however this changed in 2011 when the proportion dropped to 35%, following a declining trend, to just below TR2. This placed TR2 as the top ranked gear in 2011 although demonstrating little change to 2010 proportions.

STECF EWG 12-12 presents the estimated cod CPUE (average 2009-2011) and respective effort transfer factors between donor and receiving regulated gear groups. Red cells indicate imprecise values due to lack of adequate discard information. Yellow cells indicate sufficient sampling.

	donor gear	receiving gear							
		BT2	GN1	GT1	LL1	TR1	TR2		CPUE
3c	BT2		0.02	0.12	1	0.11	1		73
3c	GN1	1		1	1	1	1		3094
3c	GT1	1	0.20		1	0.96	1		617
3c	LL1	0.01	0	0.002		0.002	0.01		1
3c	TR1	1	0.21	1	1		1		640
3c	TR2	0.95	0.02	0.11	1	0.11			69

STECF EWG 12-12 notes that there were no Fully Documented Fisheries (FDF) reported as operating within the Irish Sea.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for landings of the regulated fisheries and their estimated fishing efforts are non-significant. The partial Fs of most Member State fisheries using regulated gears are not significantly correlated with their specific effort estimates. The lack of significant relationships between F and effort for the greatest cod contributors to cod landings indicates that kWdays at sea may not be an appropriate auxiliary measure to catch constraints and technical measures. STECF EWG 12-12 notes that the lack of discards prevents reliable conclusions and shall be considered when assessing management risks.

Effort regime evaluation for the Celtic Sea

STECF EWG 12-12 presents its review of trends in fisheries specific effort and catches in a consistent aggregation of the fisheries defined in the multi-annual cod plan to allow managers to evaluate the data with regard to a theoretical extension of the cod plan to include the Celtic Sea. The Celtic Sea is defined into two management areas, i.e. ICES Sub-divisions 7bcefghjk and ICES Sub-divisions 7fg.

STECF EWG 12-12 presents trends in fishing effort for the sensitive cod gears and non-regulated gears. Spanish data are not included as there were no data submitted. The demersal fisheries are dominated by the gears TR1, TR2 and BT2. Their effort measured in kWdays at sea remained stable during 2003-2007 and were reduced by about 20 % thereafter.

While discard information is scarce, LPUE of cod increased significantly in 2011.

STECF EWG 12-12 notes that the correlations between the summed partial F of catches and their specific effort estimates in kW days at sea over the main fisheries (effort regulated fisheries in the cod plan) are hardly significant in the entire Celtic Sea (7bcefghjk) Cel1 for the main fisheries catching Cod (French TR1 and TR2, and Irish TR1). However, these relations become significant between catches and effort for French TR1 and TR2 and remain significant for the Irish TR2 and Belgium TR2 when the area is reduced to the ICES subdivisions 7fg (Cel2). This indicates that effective fisheries management by fishing effort in units of kWdays at sea appears possible if applied in Cel2, also as an auxiliary measure to catch constraints and technical measures.

Effort regime evaluation for Southern hake and Norway lobster

STECF EWG 12-12 notes that the presented analyses are considered insufficient to fully address the specific ToR due to the unavailability of Spanish data for 2010 and 2011, which were not submitted in response to the DCF data calls for fishing effort evaluations in 2011 and 2012. In addition, Portuguese discard data were resubmitted in 2012 in a format which is obviously consistent with DCF but inconsistent with the data formats and aggregation of the data calls. Therefore, earlier provided discard information had to be deleted from the data bases and could not be used any longer.

STECF EWG 12-12 presents the requested fisheries specific parameters available aggregated to the definitions of gear groups in the Annex IIB of the annual TAC and Quota Regulations.

STECF EWG 12-12 notes that the fishing effort regime is by units of days at sea per vessel. STECF EWG 12-12 notes that if a fishing effort regime with regards to Southern hake and Norway lobster is to be maintained, it shall consider an appropriate measure of effective unit of fishing effort to account for vessel size/power and gear effectiveness.

Effort regime evaluation for the Western Channel

STECF EWG 12-12 notes the great majority of fishing effort deployed in the Western Channel is non-effort regulated, while the two regulated gear groups, the beam trawls and the static nets, constitute relatively small part. The effort in kWdays at sea of gear groups regulated by fishing effort appears to be stable since 2009 after a major drop in 2008.

STECF EWG 12-12 notes that sole landing are dominated by effort regulated beam trawls (61%), non-effort regulated gears, (32%, mainly otter trawl gears), and static nets (7%). STECF EWG 12-12 reiterates its observation that a relatively high percentage of sole is landed by non-effort regulated gears.

STECF EWG 12-12 notes that discard information in the Western Channel is scarce. The landings and discards for sole by the regulated gear 3a (beam trawl) by UK are estimated as:

Annex	Species	Year	Area	Country	Reg_Gear	Landings (t)	Discards (t)	Discard rate
IIC	sol	2011	7e	ENG	3a	349.807	21.961	0.059

STECF EWG 12-12 notes that the correlations between the summed partial Fs for landings of the major fisheries and their estimated fishing efforts are highly significant for the period 2005-2011. The correlation excludes the years 2003 and 2004 as the DCF data do represent only about 50% of the landings reported to ICES. The partial Fs of Belgian and English fisheries using the regulated gear 3a are closely correlated with their specific effort estimates in kW days at sea. However for the French regulated fisheries (3a and 3b), which represent just about 10% of the sole landings, the correlation between F and effort (kWdays) is statistically not significant. This indicates that effective fisheries management for sole in ICES Division VIIe by fishing effort in units of kWdays at sea appears possible, also an auxiliary measure to catch constraints and technical measures.

STECF EWG 12-12 notes that in 2011 the current fishing effort regime (days at sea per vessel) appears not constraining the fisheries, which have only used between 10 and 79% of the days at sea available. STECF EWG 12-12 notes that if a fishing effort regime in the Western Channel is to be maintained, it shall consider an appropriate measure of effective unit of fishing effort to account for vessel size/power and gear effectiveness. The lack of discard information in the assessment and forecast of fishing opportunities shall be considered when assessing management risks.

Effort regime evaluation for the Western Waters and Deep Sea

In accordance with its ToR STECF EWG 12-12 presents trends in effort, catches and CPUE of defined fisheries (major gear groups) for 18 management areas within the convention areas of ICES and CECAF. The EWG experienced extreme difficulties in preparing these data and the interpretation of them is confounded by uncertainty in the western waters data summaries for some member states most notably Portugal, France and Spain. Since these countries operate extensively in the Western Waters areas and are likely to contribute a significant proportion to the overall effort covered by respective regulations, the data shortfall implies that overall effort figures remain unreliable. STECF 12-12 also notes that discard information is often scarce.

Effort within the Deep sea and Western waters has been compiled for kW*days-at-sea, GT*days-at-sea, and numbers of vessels. Within the report the focus is on kW*Days at sea. Information on GT*days at sea and numbers of vessels is available via the website: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12

The general conclusion is that effort in a number of gears (particularly otter trawls) and countries has declined in recent years. This is most evident in the most northerly areas. Increases in the effort of longliners have occurred in a number of areas.

STECF EWG 12-12 notes that the presented information on landings and landings composition is very detailed but in general shows reductions in the landings of a number of species across the range of areas reported. One exception is the landings of certain deep water sharks in the more southerly ICES areas. The combination of questionable effort data and absence of catch information renders the calculation of aggregated CPUEs from deep sea and western waters data rather pointless for the present. However, all trends in national landings, effort and LPUE data are available via the website and can be queried further for specific needs: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12

Effort regime evaluation for the Bay of Biscay

STECF EWG 12-12 notes that all analyses and presented trends do exclude Spanish data, as Spain did not respond to the respective DCF data call for fishing effort regime evaluations. The resulting trends in fishing effort and landings shall be interpreted bearing in mind that the Spanish data are not considered and that discard information is scarce and dubious in certain cases.

STECF EWG 12-12 notes that the multiannual plan for the sustainable exploitation of the stock of sole in the Bay of Biscay (R (EC) 388/2006) stipulates provisions regarding maximum annual fishing capacity of the vessels holding the special fishing permit per Member State. STECF EWG 12-12 notes that only Belgium has provided the requested annual capacity data. STECF EWG 12-12 is therefore unable to evaluate the fishing effort regime in the Bay of Biscay, i.e. mainly to compare the trend in authorized fishing capacity with the trend in fishing mortality.

STECF EWG 12-12 notes that the French data submission on fishing effort in kWdays at sea and French landings consider special fishing permits only since 2010. STECF EWG 12-12 is therefore unable to fully evaluate the trend and uptake of the special fishing permit. STECF EWG 12-12 notes that the Belgian beam trawl fisheries are working exclusively under the provision of the special fishing permit since 2006, and that the French gill netters, trammel netters and otter trawlers are reported to be operating with the permit since 2010 at a rate of around 30, 10 and 50%, respectively. The vessels holding the permits are indeed taking the great majority of sole landing in 2010 and 2011.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for landings (discard data are scarce) of the major fisheries and their estimated fishing efforts are in general not significant (except for the trammel fishery of France). This indicates that effective fisheries management by fishing effort in units of kWdays at sea seems may not be an appropriate auxiliary measure to catch constraints and technical measures. STECF EWG 12-12 notes that the lack of discards prevents reliable conclusions and shall be considered when assessing management risks.

2 RECOMMENDATIONS OF THE WORKING GROUP

STECF EWG 12-12 has the generic task to review the DCF data call in 2012 to support fishing effort regime evaluations. STECF EWG has two technical recommendations to DG MARE regarding the DCF data call 2013 to support fishing effort regime evaluations as compared to the one issued in 2012.

2.1 First recommendation

STECF EWG 12-12 notes that the DCF data call in 2012 to support fishing effort regime evaluations is not consistent with the ToR. Thus, the EWG could not fully address the tasks for the Baltic regime, i.e. to assess the fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2007). STECF EWG 12-12 recommends that the Effort Data Call the Table D in 2013 shall consider an additional fishing effort parameter called “fishing activity” in units of days. The additional parameter shall be specific by country, year, vessel-length, area (A or B) and gear (regulated=REGGEAR or un-regulated NONGEAR).

2.2 Second recommendation

STECF EWG 12-12 notes that FDF has been implemented for sole in the Western Channel in 2012 (Council Reg N 43/2012, EU TAC and Quota regulation for 2012). STECF EWG 12-12 recommends to DG MARE that, if catches and effort und FDF in the Western Channel shall be analysed in 2013, the respective DCF fishing effort data call shall consider an additional specific code in Appendix 6 called “FDFIIC”.

3 INTRODUCTION

The STECF EWG 12-12 met during 24-28 September 2012 at the Casa Don Guanella in Barza d'Ispra, Italy. The meeting started by 9 am on 24 September and was adjourned by 4 pm on 28 September 2012. Working conditions provided were considered optimum.

The EWG 12-12 on fishing effort regime evaluations part 2 revised and complemented its responses to the Terms of Reference provided in the present report as has been provided in the STECF report on fishing effort regime evaluations part 1 STECF 12-09 EWG 12-06, based on the EWG which met during 11-15 June 2012 at the Portuguese Institute for Oceans and Fisheries (IPIMAR) in Lisbon, Portugal. Consequently, the present report of STECF EWG 12-12 on fishing effort regime evaluations part 2 repeals the previous incomplete report of STECF 12-09 EWG 12-06 on fishing effort regime evaluations part1.

The STECF EWG 12-12 notes that it also addresses the additional ToR in section 4.11 of the present report

3.1 Terms of Reference for EWG-12-06 and EWG 12-12

Background

The Commission consults the STECF 'Working Group on fishing effort regime evaluations' on a review of fisheries regulated through fishing effort management schemes adopted in application of

- ✓ the long term plan for cod stocks [R(EC) No 1342/2008],
- ✓ the recovery plan for Southern hake and Norway lobster stocks in the Cantabrian Sea and Western Iberian peninsula [R(EC) No 2166/2005],
- ✓ the multi-annual plan for the North Sea plaice and sole stocks [R(EC) No 676/2007],
- ✓ the multi-annual plan of Western Channel sole stock [R(EC) No 509/2007],
- ✓ the multi-annual plan for the cod stocks in the Baltic Sea [R(EC) No 1098/2007],
- ✓ the multi-annual plan for the sustainable exploitation of the stock of sole in the Bay of Biscay [R(EC) No 388/2006],
- ✓ R(EC) No 2347/2002 establishing specific access requirements and associated conditions applicable to fishing for deep sea stocks, and
- ✓ R(EC) No 1954/2003 on the management of the fishing effort relating to certain Community fishing areas and resources – so called Western Waters regime.

The overarching request is for: i) an assessment of fishing effort deployed by fisheries

and métiers which are currently affected by fishing effort management schemes as defined in Annex II of the TAC and Quota Regulations Regulation and including an assessment of fishing effort deployed by fisheries and métiers which would be affected by the extension of the cod recovery plan to the Celtic Sea and an assessment of effort in the Biscay sole fishery.); ii) an assessment of effort in the Baltic Sea and iii) an assessment of effort in Deep Sea and Western Waters regimes.

There will be two meetings of this STECF Working Group which will take place from 11 to 15 June 2012 and from 24 to 28 September 2012.

1 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan R(EC) No 1098/2007

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

Areas covered by the R(EC) No 1098/2007 (Baltic Sea)

(i) ICES division 22 to 24,

(ii) ICES divisions 25 to 28, by distinguishing areas 27 and 28.2

(iii) ICES divisions 29 to 32,

The data should also be broken down by

Member State;

Regulated gear types defined in **R(EC) No 1098/2007** (and by associated special conditions defined in the Appendix 6 of the data call);

Unregulated gear types catching cod in fishing areas (i), (ii) and (iii);

for the following parameters:

a. Fishing effort, measured in kW.days and in GT.days

b. Fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2007) and fishing capacity measured in kW, GT and in number of vessels concerned per year.

c. Catches (landings and discards provided separately) of cod in the Baltic Sea by weight and by numbers at age.

d. Catches (landings and discards provided separately) of non-cod in the Baltic Sea by species, by weight and by numbers at age

e. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod in the Baltic Sea (such data shall be issued by Member state, fishing area (i), (ii) and (iii) and fishing gear concerned in accordance with **Art. 3 of R(EC) No 2187/2005).**

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards) of cod in the Baltic Sea and associated species corresponding to vessels of length overall smaller than 8 metres in each fishery, by gear and by Member State according to sampling plans implemented to estimate these parameters.

4. To assess fishing mortality by Member State and regulated gear types corresponding to the effort deployed and the calculated maximum effort allocated.

5. To quantify the evolution of the calculated maximum effort allocated to the cod fleet (regulated gear types) in relation to the effort really used by that fleet and highlight possible shifts between metiers.

6. To assess the catches (absolute values, landings and discards provided separately) and effort deployed in 2011 corresponding to vessels participating in trials on fully documented fisheries, by species, by gear and Member State, with the aim to determine the quality of the data submitted, the potentials and limitations of the fully documented fisheries and to what extend in particular catches (absolute values, landings and discards provided separately) differs from the figures estimated by the STECF for vessels not participating in these trials.

7. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the Baltic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

8. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

9. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

10. To assess and present in a tabular form the annual partial fishing mortalities of cod, for landings and discards separately, as generated by the effort regulated gears and the non-regulated gears by fishing areas and Member States, the latter non-regulated gears as a single lump group. The trends in gear group specific partial fishing mortalities shall then be compared with (correlated against) the trends in gear group specific fishing effort of the gears mentioned by fishing areas and Member States.

11. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for cod in the Baltic, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

2 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Kattegat (Annex IIA to Regulation (EC) No 57/2011)

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Kattegat (ICES functional unit IIIaS)

The data should also be broken down by

Member State;

Regulated gear types defined in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in the Appendix 6 of the data call);

Unregulated gear types catching cod;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days, in number of vessels concerned.

b. Catches (landings and discards provided separately) of cod by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5 To assess the catches (absolute values, landings and discards provided separately) and effort deployed in 2011 corresponding to vessels participating in trials on fully documented fisheries, by species, by gear and Member State, with the aim to determine the quality of the data submitted, the potentials and limitations of the fully documented fisheries and to what extend in particular catches (absolute values, landings and discards provided separately) differs from the figures estimated by the STECF for vessels not participating in these trials.

6. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the Kattegat, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

7. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

8. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is

weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

9. To develop and calculate standard cpue's and standard correction factors to be used (within a MS) for transferring effort across gear groups with different cpue (Reg. (EC) No 1342/2008 Art 17, paragraph 5).

Commission Regulation (EU) No 237/2010 article 8(b) describes:

Correction factor = cpue donor gear /cpue receiving gear

The cpue's have to be calculated per area per gear group (regulated gear) and presented in a table. Another table for the standard correction factors. Correction factors >=1 will all be set at value 1.

10. To assess and present in a tabular form the annual partial fishing mortalities of cod, for landings and discards separately, as generated by the effort regulated gears (Annex I to Council Reg. 1342/2008) and the non-regulated gears by Member States, the latter non-regulated gears as a single lump group. The trends in gear group specific partial fishing mortalities shall then be compared with (correlated against) the trends in gear group specific fishing effort of the gears mentioned by Member States.

11. To quantitatively assess the annual trend in cod mortality that would have resulted from the fishing mortality adjustments in Article 7 and the trends in fishing effort that would have resulted from Article 12 of Council Reg. 1342/2008, for the period 2008 to 2011. STECF is then requested to quantitatively assess the partial cod fishing mortality and fishing effort trends of the regulated gears that were observed during 2008 to 2011. STECF is requested to comment on the questions if and to which extent the Member States application of Article 13, Paragraph 2, points a, b, c and d have supported the reduction of cod fishing mortality as defined in Articles 7, 8 and 9. The requested analyses will be supported by additional data provided by the Commission DG MARE to STECF EWG 12-06.

12. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for cod, plaice and sole in areas a (Kattegat), considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

13. In their notification to the Commission under article 7.4 of Regulation 43/2012 and article 6.4 of regulation 44/2012 UK and DK used discard estimates in their calculation of the amount of additional allocation of quota. In relation to TOR 5.4 (2nd question) of the STECF spring plenary report in 2012, STECF effort working group is requested to provide the Commission with the following discard estimates for 2011:

3 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Skagerrak, the North Sea and the Eastern Channel (Annex IIA to Regulation (EC) No 57/2011)

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

(i) Skagerrak (ICES functional Unit IIIaN),

(ii) North Sea (EC waters of ICES sub-area IIa and ICES sub-area IV),

(iii) Eastern channel (ICES division VIId)

The data should also be broken down by

Member State;

Regulated gear types designed in **Annex I** to **R(EC) No 1342/2008** (and by associated

special conditions defined in the Appendix 6 of the data call);

Unregulated gear types catching cod, sole and plaice in fishing areas (i), (ii) and (iii);

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days, in number of vessels concerned and days at sea for the sole and plaice fishery.

b. Catches (landings and discards provided separately) of cod, sole and plaice by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod, non-sole and non-plaice by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod, sole and plaice (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod, sole and plaice.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod, sole and plaice and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the Skagerrak, the North Sea and the Eastern Channel, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

6. To describe the spatial distribution of the fishing effort of regulated gears deployed in the Skagerrak, the North Sea and the Eastern Channel, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of the first fishing effort regime in such areas.

7. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

8. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

9. To develop and calculate standard cpue's and standard correction factors to be used (within a MS) for transferring effort across gear groups with different cpue (Reg. (EC) No 1342/2008 Art 17, paragraph 5).

Commission Regulation (EU) No 237/2010 article 8(b) describes:

Correction factor = cpue donor gear /cpue receiving gear

The cpue's have to be calculated per area per gear group (regulated gear) and presented in a table. Another table for the standard correction factors. Correction factors >=1 will all be set at value 1.

10. To assess and present in a tabular form the annual partial fishing mortalities of cod, haddock, saithe (Skagerrak and North Sea only), whiting, plaice (North Sea only) and sole (North Sea only), for landings and discards separately, as generated by the effort regulated gears (Annex I to Council Reg. 1342/2008) and the non-regulated gears by Member States, the latter non-regulated gears as a single lump group. The trends in gear group specific partial fishing mortalities shall then be compared with (correlated against) the trends in gear group specific fishing effort of the gears mentioned by Member States.

11. To quantitatively assess the annual trend in cod mortality that would have resulted from the fishing mortality adjustments in Article 8 and the trends in fishing effort that would have resulted from Article 12 of Council Reg. 1342/2008, for the period 2008 to 2011.. STECF is requested to comment on the questions if and to which extent the Member States application of Article 13, Paragraph 2, points a, b, c and d have supported the reduction of cod fishing mortality as defined in Articles 7, 8 and 9. The requested analyses will be supported by additional data provided by the Commission DG MARE to STECF EWG 12-06.

12. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for cod, plaice and sole in areas Skagerrak, North Sea and Eastern Channel and 2EU, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

13**.** In their notification to the Commission under article 7.4 of Regulation 43/2012 and article 6.4 of regulation 44/2012 UK and DK used discard estimates in their calculation of the amount of additional allocation of quota. In relation to TOR 5.4 (2nd question) of the STECF spring plenary report in 2012, STECF effort working group is requested to provide the Commission with the following discard estimates for 2011:

Country	Area	Gear	Species	Discard estimate 2011
UK	2EU and 3an (Skagerrak) and 4 North Sea	TR1	Cod	
DK	4 North Sea	TR1	Cod	
DK	3an (Skagerrak)	TR2	Cod	
DK	3an (Skagerrak) and 4 North Sea	GN	Cod	

(*): Denmark will be asked to clarify which gears were used. The WG will be informed about the outcome.

STECF is also requested to explain the method and data used for estimation of those discard rates and comment on the quality of the data provided by the Member States concerned and the overall data used for this estimation.

4 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the West of Scotland (Annex II A to Regulation (EC) No 57/2011)

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

West of Scotland (ICES division VIa and EC waters of Vb)

The data should also be broken down by

Member State;

Regulated gear types designed in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Appendix 6 to the data call as far as relevant);

Unregulated gear types catching cod;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5. To assess the catches (absolute values, landings and discards provided separately) and effort deployed in 2011 corresponding to vessels participating in trials on fully documented fisheries, by species, by gear and Member State, with the aim to determine the quality of the data submitted, the potentials and limitations of the fully documented fisheries and to what extend in particular catches (absolute values, landings and discards provided separately) differs from the figures estimated by the STECF for vessels not participating in these trials.

6. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the West of Scotland, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

7. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

8. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

9. To develop and calculate standard cpue's and standard correction factors to be used (within a MS) for transferring effort across gear groups with different cpue (Reg. (EC) No 1342/2008 Art 17, paragraph 5).

Commission Regulation (EU) No 237/2010 article 8(b) describes:

Correction factor = cpue donor gear /cpue receiving gear

The cpue's have to be calculated per area per gear group (regulated gear) and presented in a table. Another table for the standard correction factors. Correction factors >=1 will all be set at value 1.

10. To assess and present in a tabular form the annual partial fishing mortalities of cod, haddock, saithe (VIa only), for landings and discards separately, as generated by the effort regulated gears (Annex I to Council Reg. 1342/2008) and the non-regulated gears by Member States, the latter non-regulated gears as a single lump group. The trends in gear group specific partial fishing mortalities shall then be compared with (correlated against) the trends in gear group specific fishing effort of the gears mentioned by Member States.

11.To quantitatively assess the annual trend in cod mortality that would have resulted from the fishing mortality adjustments in Article 7 and the trends in fishing effort that would have resulted from Article 12 of Council Reg. 1342/2008, for the period 2008 to 2011. STECF is then requested to quantitatively assess the partial cod fishing mortality and fishing effort trends of the regulated gears that were observed during 2008 to 2011. STECF is requested to comment on the questions if and to which extent the Member States application of Article 13, Paragraph 2, points a, b, c and d have supported the reduction of cod fishing mortality as defined in Articles 7, 8 and 9. The requested analyses will be supported by additional data provided by the Commission DG MARE to STECF EWG 12-06.

12. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for cod West of Scotland, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

5 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Irish Sea (Annex IIA to Regulation (EC) No 57/2011)

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Irish Sea (ICES division VIIa)

The data should also be broken down by

Member State;

Regulated gear types designed in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Appendix 6 to the data call as far as relevant);

Unregulated gear types catching cod;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5 To assess the catches (absolute values, landings and discards provided separately) and effort deployed in 2011 corresponding to vessels participating in trials on fully documented fisheries, by species, by gear and Member State, with the aim to determine the quality of the data submitted, the potentials and limitations of the fully documented fisheries and to what extend in particular catches (absolute values, landings and discards provided separately) differs from the figures estimated by the STECF for vessels not participating in these trials.

6. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the Irish Sea, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

7. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

8. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

9. To develop and calculate standard cpue's and standard correction factors to be used (within a MS) for transferring effort across gear groups with different cpue (Reg. (EC) No 1342/2008 Art 17, paragraph 5).

Commission Regulation (EU) No 237/2010 article 8(b) describes:

Correction factor = cpue donor gear /cpue receiving gear

The cpue's have to be calculated per area per gear group (regulated gear) and presented in a table. Another table for the standard correction factors. Correction factors >=1 will all be set at value 1.

10. To assess and present in a tabular form the annual partial fishing mortalities of cod, for landings and discards separately, as generated by the effort regulated gears (Annex I to Council Reg. 1342/2008) and the non-regulated gears by Member States, the latter non-regulated gears as a single lump group. The trends in gear group specific partial fishing mortalities shall then be compared with (correlated against) the trends in gear group specific fishing effort of the gears mentioned by Member States.

11.To quantitatively assess the annual trend in cod mortality that would have resulted from the fishing mortality adjustments in Article 7 and the trends in fishing effort that would have resulted from Article 12 of Council Reg. 1342/2008, for the period 2008 to 2011. STECF is requested to comment on the questions if and to which extent the Member States application of Articles 13, Paragraph 2, points a, b, c and d have supported the reduction of cod fishing mortality as defined in Article 7, 8 and 9. The requested analyses will be supported by additional data provided by the Commission DG MARE to STECF EWG 12-06.

12. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for cod in Irish Sea, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

6 – Assessment of fishing effort deployed by fisheries and métiers which will be affected by the extension of the cod recovery plan to the Celtic Sea

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

(i) Celtic Sea (total of ICES divisions VIIb, VIIc, VIIe, VIIf, VIIg, VIIh, VIIj and VIIk) and

(ii) combined area Bristol Channel/South-East Ireland (total of the subset of ICES divisions VIIf and VIIg)

The data should also be broken down by:

Member State;

Regulated gear types designed in **Annex I** to **R(EC) No 1342/2008**;

Unregulated gear types catching cod;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod (such data shall be issued by Member state and fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**).

2. When providing and explaining data in accordance with point (1), the following **specific question** should be answered as well:

For VIIf+VIIg only, identify the **main species** (volume and percentage) caught per gear category, and related trends in recent years. Specify when this calculation has taken account of discards as well.

Special request: to analyse discards and their development per gear type in each of the ICES divisions concerning hake, monkfish and megrim. This analysis should be carried out referring to fish lengths/age of discards.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

6. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

7 – Assessment of fishing effort deployed by vessels under the Southern hake and Norway lobster plan (Council Regulation (EC) No 2166/2005) operating in the Atlantic waters of the Iberian Peninsula as specified in Annex IIB of Council Regulation (EC) No 57/2011

Terms of Reference:

1. The STECF is requested to compile, validate, analyse and assess the following historical data on fishing effort and catches in relation to vessels under the Southern hake and Norway lobster plan (Regulation (EC) 2166/2005):

details by Member State on both effort (2000-2011) deployed and catches (2003-2011) made by all fishing vessels, included those with less than 10 meters, in each fishery, broken down by age, gear type, and mesh size

The data should be broken down and assessed by:

Member State;

Regulated gear types, area as laid down **in Annex IIB of Council Regulation (EC) No 57/2011** and associated special conditions as laid down in Appendix 6 to the data call; unregulated gear types catching hake and Norway lobster;

for the following parameters:

a. fishing effort measured in kW.days, in GT.days and in number of vessels concerned;

b. catches (landings and discards provided separately) of hake and Norway lobster by weight and by numbers at age;

c. catches (landings and discards provided separately) of species other than hake and Norway lobster in areas covered by Annex IIB mentioned above (a particular attention should be paid to Anglerfish catches), by species, by weight and by numbers at age;

d. landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of hake, Norway lobster and Anglerfish in areas covered by Annex IIB (such data shall be issued by Member state, fishing gear and special conditions listed in **Annex IIB of Council Regulation (EC) No 57/2011**);

In assessing the data described above, particular attention should be paid to:

the quality of estimates of total catches and discards;

both the fishing effort and catches including landings and discards of hake, Norway lobster, anglerfish, and associated species in relation to vessels of overall length smaller than 10 metres in each fishery, by gear (regulated and unregulated gears) and by Member State. The representativeness of data originated from sampling schemes should also be assessed.

to the description of the spatial distribution of the fishing effort of regulated gears deployed in the Atlantic waters of the Iberian Peninsula according to data reported in logbooks on the basis of ICES statistical rectangles with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of the fishing effort regime.

An excel table listing the kW.days from 2000 to 2011 broken down per gear type, special condition and Member State should be made available.

2. In the context of the revision of the current Southern hake and Norway lobster recovery plan (Council Regulation (EC) No 2166/2005) and on the basis of the data provided, the STECF is requested to assess the fishing effort regime, in particular commenting on the quality and completeness of these data used to assess the impact of future effort management measures proposed by the Commission.

3. To compare the evaluation of days allocated to the vessels carrying regulated gears (allowed activity) and really used by those vessels.

4. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

5. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

6. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for Nephrops, hake and monk in ICES Div. 8c and 9a, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

8 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Western Channel
(Western Channel sole stocks ICES zone VIIe, Annex IIC to Regulation (EC) No 57/2011)

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Western Channel (ICES division VIIe)

The data should also be broken down by

Member State;

Regulated gear types designed in **Annex IIC** to **R(EC) No 57/2011** (and by associated special conditions defined therein as far as relevant);

Unregulated gear types catching sole;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned.

b. Catches (landings and discards provided separately) of sole by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-sole by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of sole (such data shall be issued by Member state and fishing gear listed in **Annex IIC to R(EC) No 57/2011**).

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards) of sole and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

4. To plot, the spatial distribution of the fishing effort of regulated gears deployed in the Baltic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles and to provide interpretation of any changes or trends.

5. To compare the evaluation of days allocated to the vessels carrying regulated gears (allowed activity) and really used by those vessels.

6. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

7. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

8. To identify, based on available data on fisheries specific landings and effort by statistical rectangle, ways to estimate standardised catchability indices for sole in the Western Channel, considering the best practice to account for discards and to raise landings to catch figures. Detailed maps on estimated annual catchability indices by species shall then be presented for these areas.

9**.** In their notification to the Commission under article 7.4 of Regulation 43/2012 and article 6.4 of regulation 44/2012 UK and DK used discard estimates in their calculation of the amount of additional allocation of quota. In relation to TOR 5.4 (2nd question) of the STECF spring plenary report in 2012, STECF effort working group is requested to provide the Commission with the following discard estimates for 2011:

Country	Area	Gear	Species	Discard estimate 2011
UK	7e Western Channel.	3a	Sole	

9 - Assessment of fishing effort and evaluation of management measures to be assessed in 2009 (Deep sea and Western Waters effort regime)

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

(i) ICES area I (EU waters; non EU waters), only linked to Deep Sea species

(ii) ICES area II (EU waters; non EU waters), only linked to Deep Sea species

(iii) ICES area III (EU waters; non EU waters), only linked to Deep Sea species

(iv) ICES area IV (EU waters; non EU waters), only linked to Deep Sea species

(v) ICES area V (EU waters; non EU waters)

(vi) ICES area VI (EU waters; non EU waters)

(vii) ICES area VII excluding VIId (EU waters; non EU waters)

(viii) ICES division VIId

(ix) the Biologically Sensitive Area as defined in Article 6 of Reg (EC) No 1954/2003

(x) ICES area VIII (EU waters; non EU waters)

(xi) ICES area IX (EU waters; non EU waters)

(xii) ICES area X (EU waters; non EU waters)

(xiii) ICES area XII (EU waters; non EU waters), only linked to Deep Sea species

(xiv) ICES area XIV (EU waters; non EU waters), only linked to Deep Sea species

(xv) CECAF area 34.1.1 (EU waters; non EU waters)

(xvi) CECAF area 34.1.2 (EU waters; non EU waters)

(xvii) CECAF area 34.1.3 (EU waters; non EU waters)

(xviii) CECAF area 34.2 (EU waters; non EU waters)

The data should also be broken down by

Member State;

The following gear types:

- Regulated gear types
  - Beam trawls
  - Bottom trawls & demersal seines
  - dredges
  - drifting longlines or set longlines (bottom)
  - driftnets or set gillnets
  - trammel nets
  - pots & traps

- Unregulated gear types:
    - Pelagic trawls and pelagic seines;
    - longlines (surface)

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) by weight of:

- 5 most important (in weight landed) demersal species excluding scallops, edible crab, spider crab,
- Scallops
- Spider crab and edible crab
- 5 most important (in weight landed) Deep-sea species (according to Annex I and II of Reg 2347/2002), only related to fisheries which have been identified with special condition DEEP
- 4 most important (in weight landed) pelagic species, plus always tuna-like species (SKJ,ALB,YFT,BET,SWO).

c. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) by Member State and gear, given by total catches of the gear divided by kW-days and GT-days.

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. When providing and explaining data in accordance with point (1), the following **specific question** should be answered as well:

Discuss whether additional data on fishing depth and VMS position could improve the analysis and interpretation of deep sea fisheries, and how these data could be called from MS, processes and presented

4. To identify recent effort trends in pelagic fisheries where possible, in particular in areas XI, X and CECAF areas.

5. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

10 – Assessment of fishing effort deployed by fisheries and métiers which are currently affected by the multiannual plan for the sustainable exploitation of the stock of common sole in the Bay of Biscay (R(EC) No 388/2006)

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

ICES division VIIIa, and

ICES division VIIIb

The data should also be broken down by:

Member State;

Type of gear (as laid down in **Annex IV of Commission Decision 2008/949/CE**) for regulated vessels (as laid down in **Article 5 of R(EC) No 388/2006)**

Type of gear (as laid down in **Annex IV of Commission Decision 2008/949/CE**) for unregulated vessels (as laid down in **Article 5 of R(EC) No 388/2006)**

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Fishing capacity in GT

c. Catches (landings and discards provided separately) of common sole (Solea solea) by weight and by numbers at age.

d. Catches (landings and discards provided separately) of species other than common sole, by weight and by numbers at age

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards separately) of common sole and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear and by Member State according to sampling plans implemented to estimate these parameters.

4. To describe the spatial distribution of the fishing effort deployed in the Bay of Biscay, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine the spatial distribution of fishing effort and its development among the time period.

5. To highlight any unexpected evolutions shown by the data which are not in line with the general trend.

6. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the WG is asked to explain or describe it. In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the WG is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

3.2 Additional Terms of Reference for EWG 12-12

TORs for TAC/effort advice for the Irish Sea and Kattegat cod stocks

Background: The STECF report "Management plans part 2- changes to cod plans (STECF -12-13)" provides a number of recommendations to improve the functioning of Council Regulation (EC) No 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks. The report provides specific methods that could be used for Irish Sea cod and Kattegat cod if short term forecasts cannot be provided. In addition the report proposes a method based on catch that could be used, instead of the F based approach, to demonstrate conformity with the Regulation as regards the implementation of Article 13. To explore how those recommendations and methods provided in the report "Management plans part 2- changes to cod plans (STECF -12-13) could be applied in practice the Commission is requesting to provide:

1. TAC and effort levels for the cod stocks in the Irish Sea and in the Kattegat for 2013. The advice should be made on basis of information available to ICES, STECF and JRC.

   Where possible, it is requested to advice on alternative or more appropriate measures than further reductions in TAC and effort.

2. Catch options equivalent to the reduction target of F deriving from the management plan for the fleet segments that are affected by annual fishing effort adjustments for each Member State concerned.

   Additionally the data requirements for Member State reporting concerning implementation results should be specified in detail so that these can be assessed by STECF.

3.3 Participants

STECF EWG 12-12 notes that participants of both EWG-12-06 on fishing effort regime evaluations part 1 and EWG 12-12 fishing effort regime evaluations part 2 have contributed to the present report. Section 7 presents the participants of both meetings.

4 DATA USED

The following sections provide an overview on data definition, acquisition, and evaluation procedures agreed by the expert working group. There are also provided experts' concerns regarding the data as submitted by the Member States in response to the DCF data call in 2012 for fishing effort regime evaluations

4.1 Report Notations

4.1.1 Baltic Sea

To identify the categories assessed for effort and catch this working group adopts terminology that matches definitions made in the management plan for Baltic cod (R(EC) 1098/2007). This means that all trawls, Danish seines, gill nets, entangling nets or trammel nets with mesh size >=90mm and longlines were assumed to be regulated gears (Table 4.1.1.1). Remaining gear and mesh size combinations were taken to be unregulated gears (Table 4.1.1.2).

However, the definition in the cod management plan is not consistent with regulation R(EC) No 2187/2005). According to the latter regulation it is only permissible to fish for cod with mesh size >=105mm using otter trawls, Danish seines or similar gears. When using static gears mesh size has to be above 110mm. In TOR 1e it is explicitly asked to calculate Landings per Unit of Effort (LPUE) and Catches per Unit Effort (CPUE) of cod in the Baltic Sea by Member State, fishing area and fishing gear concerned in accordance with Art. 3 of R(EC) No 2187/2005. However, to be consistent within the report we also used the gear categories from the cod management plan (Council Regulation (EC) 1098/2007) for this TOR.

Sub-Areas were defined according to Council Regulation (EC) 1098/2007. This means that Subdivision 22-24 is declared as fishing area “A”, Subdivision 25-28 as “B” and Subdivision 29-32 as “C”. Effort trends and catch compositions for Subdivisions 27 and 28.2 separately were not analysed due to data problems and limited time available.

Table. 4.1.1.1 Regulated gear types, mesh sizes and special conditions as defined in Reg. (EC) No. 1098/2007.

Gear	Mesh Size	SPECON
OTTER	>=90mm	none
OTTER	>=90mm	BACOMA
Danish Seine	>=90mm	none
Danish Seine	>=90mm	BACOMA
Pelagic Trawl	>=90mm	none
Pelagic Trawl	>=90mm	BACOMA
Pelagic Seine	>=90mm	none
Pelagic Seine	>=90mm	BACOMA
Gill net	>=90mm	none
Trammel net	>=90mm	none
BEAM	>=90mm	none
Longlines		

Table 4.1.1.2 Unregulated gear types, mesh sizes and special conditions as defined in Reg. (EC) No. 1098/2007.

Gear	Mesh Size	SPECON
OTTER	<90mm	none
Danish Seine	<90mm	none
Pelagic Trawl	<90mm	none
Pelagic Seine	<90mm	none
Gill net	<90mm	none
Trammel net	<90mm	none
Beam Trawl	<90mm	none
DREDGE	all	none
POTS	all	none

4.1.2 Cod Zones Multi-annual Plan

The compilation of effort data as described in this report represents a continuation of a process which was initiated in association with the establishment of recovery plans for various European cod and hake stocks.

In addition to other properties, major gear types are used to identify fisheries which are not effort regulated. The notation and categorisation effort regulated fisheries used has reflected that defined in the relevant technical regulations. The most recent revision of the cod recovery plan, and the associated effort regime are described in Regulation 1342/2008.

Under the revised 'cod plan' the following gear groupings are set out in Annex I of the Regulation together with areas in which they apply. Throughout the report reference is made to gears such as TR1, TR2 etc. Under the revised scheme Member States are allocated 'effort pots' in KW*days for each category which can then be managed nationally. EU allocated 'days at sea' per vessel are no longer applicable. The following summary of gear and area codes that apply in the current cod plan is taken from Annex 1 of Regulation 1342/2008.

ANNEX I
Effort groups are defined by one of the gear groupings set out in point 1 and one of the geographical areas set out in point 2.

1. Gear groupings

(a) Bottom trawls and seines (OTB, OTT, PTB, SDN, SSC, SPR) of mesh:
TR1 equal to or larger than 100 mm,
TR2 equal to or larger than 70 mm and less than 100 mm,
TR3 equal to or larger than 16 mm and less than 32 mm;

(b) Beam trawls (TBB) of mesh:
BT1 equal to or larger than 120 mm
BT2 equal to or larger than 80 mm and less than 120 mm;

(c) Gill nets, entangling nets (GN);

(d) Trammel nets (GT);

(e) Longlines (LL).

2. Groupings of geographical areas:
For the purposes of this Annex, the following geographical groupings shall apply:
(a) Kattegat;
(b) (i) Skagerrak; (ii) that part of ICES zone IIIa not covered by the Skagerrak and the Kattegat;
ICES zone IV and EC waters of ICES zone IIa; (iii) ICES zone VIId;
(c) ICES zone VIIa;

(d) ICES zone VIa.

This categorisation is relatively simple when compared to that of the previous version of the cod recovery plan , and the number of 'special conditions' under which vessels have differing allocations of effort is relatively restricted. The current cod recovery plan makes allowance for vessels which can demonstrate a track record of having caught less than 1,5% cod to be excluded from the effort regime (Regulation 1342/2008, Article 11, para 2b). There is also scope for groups of vessels to be allocated additional effort if they participate in discard reduction or cod avoidance schemes leading to equivalent or greater reductions in cod mortality than the corresponding effort restriction (Regulation 1342/2008, Article 13, para 2c). These conditions are represented in the database as follows:

Condition	Code
Effort deployed by those boats granted the <1.5% derogation excluding them from the effort regime	CPart11
Effort deployed by vessels operating in Member State schemes under Article 13	CPart13

However, STECF EWG 12-06 is requested under the specific ToR 11 to assess partial fishing mortality and fishing effort over the period 2008-2011 by each of the provisions of Article 13, paragraph 2, points a (catching less than 1% cod), b (catching less than 5% cod), c (cod avoidance or discard reduction plan) and d (west to the West of Scotland line), respectively. The Member States aggregated figures are then encoded by CPart13.2.a-d.

4.1.3 Southern hake and Nephrops

Notation devised for effort categories specified under Annex IIB of Regulation (EC) No. 57/2011 remains the same as in previous reports. Under Annex IIB gear groups are defined under point 3 and special conditions under point 5.2. In 2007 gear group definitions were made for bottom trawls, gill nets and bottom long lines. These groupings were merged in the 2008 legislation. The working group considered maintaining the categories as defined in 2007 was important in terms of maximising the clarity of information from results. Therefore gear groupings have been kept consistent with those from the Annex IIB in 2007 (found in regulation (EC) No. 41/2007). Table 4.1.3.1 links notation with gear group and special conditions. So, for example, a vessel using a gill net of mesh size ≥ 60mm and conforming to the hake catch composition rules would belong to derogation "3.b.i IIB52a".

Table. 4.1.3.1 Gear group and special conditions of Annex IIB, Reg. (EC) No. 57/2011

Derogation			Mesh size range		Special Condition	
Gear group Point 3 1	Special condition Point 7 2	Gear	mesh size mm From	mesh size To mm	Hake landings<5 tonnes in each of the years 2001, 2002 and 2003	Nephrops landings <2.5 tonnes in each of the years 2001, 2002 and 2003
3.a		TD	32	inf		
3.b		G	60	inf		
3.c		LL	-	-		
3.a.i	5.2.(a) & 5.2.(b)	TD	32	inf	x	x
3.b.i	5.2.(a) & 5.2.(b)	G	60	inf	x	x
3.c	5.2.(a) & 5.2.(b)	LL	-	-	x	x

TD = Trawl of Danish seine or "similar gears" (dredges are included in similar gears)
G = Gill net
LL = Long lines
1. Gear groupings correspond to Annex IIB in Reg (EC) No. 57/2011. Special conditions 5.2.(a) and 5.2.(b) cannot be complied with independently.

4.1.4 Western Channel sole

Under Annex IIC gear groups are defined under point 3 and special conditions under point 7. Table 4.1.4.1 links notation with gear group and special conditions. So, for example, a vessel using a static net of mesh size less than 220mm belongs to derogation "3.b".

Table. 4.1.4.1 Gear group and special conditions of Annex IIC, Reg. (EC) No. 40/2008. Note that no special conditions are currently in operation under Annex IIC.

Derogation			Mesh size range		Special Condition
Gear group Point 3	Special condition Point 7	Gear	mesh size mm From	mesh size To mm	
3.a		BT	80	inf	none
3.b		GE & TR	0	219	none

BT = Beam Trawl
GE = Gill net or entangling net
TR = Trammel net

4.1.5 Celtic Sea

STECF EWG 12-12 defined the codes of gears as identical to the ones for the cod zones given in section 4.1.2.

4.1.6 Bay of Biscay

STECF EWG 12-12 defined the codes of major gear groups as identical in the 2012 DCF data call with an identification of the boats holding a special fishing permit as defined in R (EC) No 388/2006, encoded as SBcIIIart5.

4.1.7 Western Waters and Deep Sea

STECF EWG 12-12 defined the codes of major gear groups as identical in the 2012 DCF data call with an identification of the boats conducting deep sea trips, encoded as DEEP.

4.2 Data call

The DCF data call 2012 to support fishing effort regime evaluations published on 2 March 2012 with a deadline on 4 May 2012. The data call is fully documented at the JRC DCF web page: https://datacollection.jrc.ec.europa.eu/home

The STECF EWG 12-12 notes that the 2012 data call is largely consistent with the data call issued in 2011 for the same purpose. However, there was one new table defined for landings by ICES statistical square by fisheries to complement the information on fishing activities by square.

4.3 Data policy, formats and data availability

Originally, the catch and effort data base structures used by STECF-SGRST were developed by the ICES Study Group on the Development of Fishery-based Forecasts (ICES CM 2004/ACFM:11, 41 pp.) with few amendments required for the review of specific fishery regulations. Over time, there have been numerous changes to the original database and the way in which data are stored and accessed in order to reflect changes to some of the effort regimes and to accommodate data from deep-water and Fully Documented Fisheries.

Experts reported on national data policies for the national fleet specific landings, discards and effort data and generally supported the continued use of the data by STECF but with required permission for any use by other scientific or non-scientific groups. This implies that national experts need to be contacted for their consent before granting access to the data.

JRC requests to be informed about applications for data access and any notifications.

4.3.1 Data availability Table A Catch 2003-2011

Table 4.3.1.1 Overview of the catch data submission for the 2012 Fishing Effort Regimes data call. In bold the dates when catch data where submitted after the official submission deadline (4th of May).

Country	Data Submission	First Submission (Deadline 4-May)	Last Submission (Meeting 24-September to 28-September)
BEL	DCF website	**31-May**	
DEU	DCF website	3-May	**11-Jun**
DNK	DCF website	3-May	**14-Jun**
ESP	none		
EST	DCF website	3-May	
FIN	DCF website	3-May	
FRA	DCF website	4-May	**11-Jun**
GBR	File in the meeting	**12-Jun**	**14-Jun**
GBR SCO	DCF website	3-May	**13-Jun**
IRL	DCF website	4-May	
LTU	DCF website	2-May	**18-May**
LVA	DCF website	28-Apr	**21-May**
NLD	DCF website	**14-May**	**4-Sept**
POL	DCF website	27-Apr	2-May
PTR	DCF website	4-May	
SWE	DCF website	4-May	**24-May**

4.3.1.1 Belgium

A total number of 1453 records were submitted only for 2011. No updates for previous years data. There were 104 records with missing mesh size information for gear types such as trammels, dredges and gillnets. Moreover, many records regard species that are not requested in the official data call, like BLL, RJN, RJM, RJC and RJH. Specific condition reported for 2011 data was SBCIIIart5.

Belgium provided fleet specific landings data for 2003-2011 derived from official logbook databases for all vessels ≥10 meters. The data covers all areas in which the Belgian fleets are active and conforms to the requested aggregation, by quarter, area, gear and mesh sizes.

The species provided are: anglerfish, brill, cod, dab, haddock, hake, lemon sole, Nephrops, plaice, saithe, pollack, sole, skates and rays, turbot and whiting. The age composition on landings for sole and plaice in ICES subdivisions IV, VIIa, VIId, VIIfg and sole in subdivision VIIIab have been provided by quarter for the Belgian beam trawlers. The total number of samples, as well as numbers aged and length measurements by quarter have been apportioned in the same ratio as total quarterly beam trawl fleet landings to annual landings.

Discard data for 2004-2011 were provided from the Belgian Beam trawl fleet for the following species: anglerfish, brill, cod, dab, haddock, hake, lemon sole, plaice, saithe, sole, skates and rays, turbot and whiting. The areas covered are 4, 7a, 7d, 7e, 7f, 7g, 8a and 8b. Belgian discard data represent all ages and are disaggregation by age for cod in areas 4, 7a, 7e, 7f and 7g; for sole in areas 4, 7a, 7d, 7f, 7g, 8a and 8b; for plaice in areas 4, 7a, 7d, 7f and 7g. The discards information for the other species mentioned above are without disaggregation by age. Information by area for all observer-trips during the year has been merged together, giving an annual percentage of discards estimate per species. The annual estimates of discard rate have been assumed to apply in each of the 4 quarters.

There is no information on misreporting. The landings in the database are based on combined information of logbook data and sale slips. The actual landed weight is split according the logbook information on hours fished in the respective rectangles.

As Belgium does not have trip-by-trip information on the true mesh size for its fleets for 2003-2006, Belgium (as well as other countries) agreed to assume certain mesh sizes for its beam trawler fleets. Beamers operating in the Bay of Biscay (VIIIa,b) were assumed to use a 70-79 mm mesh size as this is the minimum legal mesh size in that area for beamers. For the North Sea, the trips were split according to the rectangles reported in the logbooks, and mesh sizes were allocated in line with Council Regulation (EC) N° 2056/2001. This regulation stipulates that beam trawlers are prohibited to use less than 120 mm in ICES Division IV to the north of 56° 00' N. Therefore all beam trawl information from this part of ICES Division IV was accounted against an assumed >120mm mesh size. The same regulation also stipulates that within the rectangle with coordinates along the east coast of the UK between 55° 00' N and 56° 00' N and the points 55° 00' N – 05° 00' E and 56° 00' N – 05° 00' E, beam trawlers can use 100 to 119 mm mesh size. Here also it was assumed that the mesh size used by the Belgian Beam trawl fleet was 100-119 mm. For the rest of ICES Division IV (the southern part) a mesh size of 80-89 mm was assumed for the beam trawlers. Apart from these assumed mesh size which are based on rectangle information from logbooks, it was also assumed that the shrimp fishery used a mesh size of 16-31 mm. The mesh size of the beam trawl fleets in the other area's was assumed to be 80-89 mm. Since 2007 mesh sizes used by beam trawls operating in different areas have been based on the true mesh sizes used on each trip.

The Belgian gear categories are: beam, dredge, gill, longline, otter, and trammel. For trammel nets, no assumptions of mesh sizes were made. Specific condition reported for 2011 data was SBCIIIart5 for all Belgian vessels operating in areas 8a and 8b.

Belgium did not provide any information for vessels under 10m.

4.3.1.2 Denmark

Danish data were submitted on time, and with the requested information for all tables. Tables A-D were submitted for 2011 only and appended to the previous time series. As in previous years, some few records did not pass the Data Submission filters when some information on e.g. gear, mesh size or fishing area was missing, but these records represent only a very small proportion of the reported Danish fisheries activities.

However, some issues were discovered during the course of the EWG for tables A-D. A minor one was corrected straight away and resubmitted during the early days of the meeting. Three other issues are to be mentioned:

- The reporting of Fully Documented Fishery is particularly ambiguous in the data call. Denmark interpreted it as such as that FDF records should be reported separately only (and therefore substracted from the total estimate within the same strata). The data call doesn't make it explicit enough that FDF should be actually summed up twice. As a consequence of this ambiguity, all Danish catches and effort figures in the specon "none" where some FDF fisheries are involved were by inadvertence underestimated. This misinterpretation was also present in the 2011 report of the STECF, but the extent of FDF fisheries was lesser in 2010 than in 2011 and this was therefore not noticed. This issue was manually addressed by the STECF EWG for all tables A-E and all years, leading to more accurate reporting in 2012.

- The data regarding small vessels (<10m in Annex IIa and <8m in Baltic) was observed to be erroneous (and thus largely underestimated) for data up to 2009

- Fishing activity (days at sea) in the Baltic up to 2007 is missing.

Denmark will make sure that these will be accounted for in future submissions, and underlines also the absolute need to remove all ambiguities and potential sources of misinterpretation in future data calls.

STECF EWG 12-12 noted that the Danish 2011 submission does not cover the special conditions BACOMA or T90.

4.3.1.3 Estonia

STECF-EWG 12-12 notes that discards were provided for flounder only. Mesh sizes are inconsistent with the data call for fleet <12 m.

4.3.1.4 Finland

Finish data were submitted in an inconsistent format together with a hint towards the data confidentiality clause in the DCF. STECF EWG 12-12 could not make use of the Finish data given its specific ToR.

4.3.1.5 France

No age data provided. Discards data provided only for 2010 and 2011 but care is required in the use of these data to draw firm conclusions about catch composition. Some missing area information was evident.

4.3.1.6 Germany

Fleet specific landings and estimated discard data were provided as outlined in the data call for 2003-2011 derived from official logbook data covering all vessels ≥10m. For the Baltic information for vessels >=8m is provided. For 2009-2011 also some information for vessels <10m in the North Sea are provided. These information, however, do not cover all vessels in this category as logbooks are not mandatory for these vessels. An extra table is provided for vessels <10m (North Sea) and <8m (Baltic) based on landings declarations from these vessels in a more aggregated format. All data provided do not include unallocated landings. The estimation of discards is based on about 20-30 observer trips per year. The sampling scheme does not cover all quarter-gear-mesh size combinations in the data call. Therefore, final discard estimates in this report are to some extent based on observations from other countries. The data consider the aggregation by quarter, area, gear, mesh size, and existing derogations including special conditions of 8.1.a, 8.1.c, 8.1.d, 8.1.e and 8.1.f for the

years 2003-2008 as requested. For 2009 onwards the special conditions from the new cod management plan are used.

4.3.1.7 Ireland

Ireland provided fleet specific landings data for 2003-2011 derived from declared landings within the national logbook database (IFIS) for all vessels ≥10 meters in length. Operational landings information was used in order to provide landings data within the Biologically Sensitive Area (BSA). All species requested by the group and landed by Irish vessels have been provided in the requested aggregation. The following special condition information was supplied: none, CPart13, CPart11 and DEEP. SPECON DEEP is a duplication of effort within the relevant areas.

Under 10 meter vessels are not required to complete logbooks, therefore landings data from these vessels are obtained from monthly reports. These reports provide species live weight by ICES area on a monthly basis. No vessel, gear, or effort information is recorded. There is some doubt as to the accuracy of these monthly reports.

It was not possible to accurately aggregate data to the level of EU, coast, and RFMO. Data was assigned according to the following: Where an EU category existed within an area, all data from that area was categorised as EU, with the exception of ICES division X assumed to be RFMO. Those ICES divisions without an EU category where assumed as 1 coast and 2 coast.

There is no quantitative information on misreporting although area misreporting for cod is known to be an issue between VIIg and VIIa.

Revisions have been made to the 2003-2010 data due to continuing revisions and improvements to the national database, in addition to a revision of the methodology used to estimate discards.

Biological Landings estimations: Irish biological landings information is not recorded with mesh size information, this was re-constructed by linking to the logbooks database, where possible.

Samples were raised to the landings using the sample weights. The sample weights were estimated using length-weight relationships for each species (estimated for all quarters and areas within each year). Numbers-at age were estimated by applying age-length keys (ALKs). The ALKs are built up from aged fish from the relevant year, quarter and division. Gear and vessel parameters are assumed to be irrelevant for ALK data. Length classes with missing ages were filled in using an automatic procedure based on methods described in Gerritsen et al. (2006). Numbers-at-age for unsampled fleet segments were not estimated.

Discard and biological Discards estimations: Discard length distributions were raised to trip level and expressed in numbers (at length) per hour fished. The mean discard numbers at length per hour fished were estimated for each year, gear and ices division. OTTER trawl gears were further split into CRU (at least 50% Nephrops) and DEF (at least 50% demersal fish). ALKs were applied to these using the same approach as was used for the landings. The total fishing effort by quarter, vessel length category, gear, mesh size category, area, and special conditions was then used to estimate the discard numbers at age for each of these fleet segments.

WARNING: Due to the very high level of disaggregation, most of the fleet segments (year, quarter, vessel length, gear, mesh, area and specon) have no sampling data and many data points have been interpolated from other fleet segments. It is therefore not appropriate to re-aggregate the data in any way as this would result in highly imprecise and inaccurate data.

It has long been recognised by ICES expert groups like WKACCU; WKPRECISE; WKMERGE and WKPICS that sampling at highly resolved strata (fleet segments) is inefficient and will lead to over-stratification and problems of under-sampling or non-sampling of strata, and poor control over sampling probabilities. Instead, these expert groups advise that sampling frames and sample selection schemes should be specified with temporally stable strata that are capable of providing sufficient data for the required metiers and fishing

grounds. For this reason it is inappropriate for STECF to demand data at a higher level of disaggregation than the sampling design allows.

4.3.1.8 Latvia

STECF EWG notes that according to the Latvian National Programme discard data should to be collected for cod only.

4.3.1.9 Lithuania

STECF EWG 12-12 notes that discards for cod were estimated and provided only.

4.3.1.10 The Netherlands

The Netherlands only provided catch data for 2011. No updates for previous years were submitted. There were no problems with the landings data, but there were problems with the discard data. The quality of the discard data as such is not problematic. There were problems with processing the discard data (aggregating and raising) in a consistent way this year. There are 2 sources which raises questions on the reliability 1) the internal inconsistency of the time series and 2) different data have been send to other working groups. For this reason, the reliability of the discard data provided by the Netherlands in 2011 was questionable. One of the more specific problems was solved during the meeting, making the reliability of the data higher. This data was processed and used by the EWG. The remaining issues were also solved during the meeting but were too late to be processed without disturbing the work of the EWG. In order to include the most accurate and updated discard values and having the agreement of the experts of the EWG, the chairman and DG MARE officials, a re-submission for 2011 data set took place on the 4th of September 2012 which included updated discard values. These values were used in order to update all the necessary data tables, figures and appendixes of the report during the EWG 12-12, 24-28 September 2012.

4.3.1.11 Poland

Comparison of 2011 mesh size data with 2004-2010 shows that they are not consistent and significantly different. Neither mesh size nor SPECON (BACOMA window, T90) information were available from the database for 2004-2010. Thus these information were estimated based on expert knowledge and assumptions. Targeted species assemblages (métier), actually fish species caught and gear used were taken into account to identify mesh size. In 2011 data about mesh size were calculated based on actual information derived from logbooks, this caused that many "-1" values (missing values) which were reported for 2001-2010, become known and changed into "16-31" or "32-54" in 2011. Information on discards was provided for cod (2003-2011) taken in fisheries targeting cod and discards for herring, sprat and flounder was delivered for 2011 only.

4.3.1.12 Portugal

Landings: Portugal presented data on landings for the period 2003-2011 for all species. Data from all years were resubmitted in kilograms and not in tons as requested in the data call. No differences were found between the resubmitted data in 2011 and the data submitted in 2010.

Discards: In the period 2004-2010, hake discards were provided, assuming that they were proportional to the trawl landings, the only gear sampled. However, considering that, according to the Data Collection Framework

raising procedures, discards are raised using effort and not landings and that the data call grouping is not consistent with the sampled DCF métiers, hake discards from Portugal were removed from the database.

The Portuguese annual discard estimates have high coefficients of variation (> 30%). The assignment of these data to the data call disaggregated métiers when the métiers do not perfectly match is not possible without making strong assumptions different from those used in the established raising procedures and that could lead to completely different total discard estimates.

Therefore, data on hake annual discards by DCF métiers were provided and included in tables and figures in aggregated form.

At present, the procedure used to raise discards from haul to fleet level in the Portuguese trawl fisheries is adapted from Fernandes et al. (2010) (Jardim and Fernandes, in prep.). Using this procedure, species with low frequency of occurrence or abundance in discards (i.e., a large number of zeros in the data set) cannot be reliably estimated at fleet level (Jardim et al., 2011). The frequency of occurrence and abundance of most species in the discards of the Portuguese bottom trawl fleet was below 30%. Consequently, annual trawl discard volumes and length frequencies at fleet level were only estimated for some métiers, species and years.

In what concerns gillnets and trammel nets, sampled from late 2009 onwards, the sampling methodologies used in these fisheries were only recently standardized (Prista and Jardim, 2011). These are only two of the several métiers that can be performed by the so-called Portuguese polyvalent fleet (or multi-gear fleet). Besides nets, the vessels in this fleet are also frequently licensed to use pots and bottom longlines, and frequently carry out several métiers in a single fishing trip and/or switch métiers during the year. Such uncertainties in determining fishing effort at métier level, along with low spatial-temporal coverage of fleet activity and difficulties in raising data from multi-métier fishing trips to fleet level have hampered the estimation of gillnet and trammel net discards. No estimates at fleet level have been performed to date. Bottom longlines are not among the selected métiers for onboard sampling under the DCF National program.

Norway lobster is a valuable species and discards are negligible. No discard estimates were presented for other species due to the reasons presented above.

Age data: There is a serious concern about European hake growth. Tagging experiences show that growth rate could be two times higher than expected, although the true value is uncertain (ICES, 2009). At present, the assessment model is length based (ICES, 2010a).

No age data were provided for hake neither for the other main species. For Norway lobster, there is not a standardized ageing methodology.

4.3.1.13 Spain

Spain did not provide data this year and in 2011. The following comments correspond to the data provided in 2010: 2002-2009 landings and 2003-2009 discards data were provided by quarter, gear, mesh size range, area and special condition. Spain did not provide 2010 and 2011 data. 2000 and 2001 data were not provided because the logbooks data low quality those years. 2002-2009 8c and 9a data for Annex IIB and Deep Species and 2009 all areas data for DEEP SPECIES areas were submitted. Vessel length categories, allowed activity, fishing activity and fishing capacity were not identified for 2002-2008 8c and 9a data. No EU/RFMO/COST identification for ICES Subarea 10 and Divisions 7j, 7k, 8d, 8e, 8b, 14b and CECAF areas 34.1.2 and 34.2.0.

All discards data were deleted as there are unreasonable values reported. This is because the DCF sampling scheme is very wide (by year and for both ICES Divisions 8c and 9a together) and the Data Call raising strata are very detailed (quarter and ICES Division); therefore there were very few samples by Data Call stratum and the bias was huge. After, 2002-2009 8c and 9a otter hake discards were calculated with 2010 ICES WGHMM respective discard rates.

There are not hake, *Nephrops* and monkfish ages since nowadays there are relevant doubts in the specific international working groups about hake and monkfish ageing (see February 2010 STECF Hake Benchmark and 2011 ICES WGHMM) and there is not a standardized methodology for Nephrops ageing.

No information about vessels under 10 meters was provided since data source was logbooks, but Annex IIB does not deal with vessels under 10 meters.

4.3.1.14 Sweden

Sweden has provided catch data, both landings and discards in the required format for the years 2003-2011. Age distribution data were submitted for cod landings and discards in the Baltic, Skagerrak and Kattegat and for plaice discards in Skagerrak and Kattegat. Landings in tonnes were retrieved from logbooks and the age distribution data for landings were collected by market sampling. The discard data were collected under the Swedish on board discard sampling programme. No discards have been submitted for fisheries not covered by the sampling programme.

4.3.1.15 United Kingdom

Data for 2011 were submitted during the experts meeting, and an error relating to the recording of fully documented fisheries effort under the IIA regime area 3b was identified and corrected for 2010. This led to an increase in catch for 2010 under Cpart13 (for TR1) and None (for GN1 and small amounts for unregulated gears) categories on last years' submission. Country codes included ENG, GBG, GBJ, NIR and IOM. In total, 35459 records were submitted or updated. As in previous years, there were a number of records with missing mesh size information and a combination of DEEP specific condition and BSA area which were ignored during the analysis. Specific conditions reported were DEEP, Cpart13 and FDFIIA.

Scotland: New data was submitted only for 2011. Scotland supplies data where records present no gear type information and/or no mesh size information for the purpose of data completeness. As in previous years there were records for area BSA and specific condition DEEP which were ignored in the analysis. Specific conditions reported were DEEP, FDFIIA, CPart11 and CPart13.

Landings and discard numbers at age were derived from market sampling and discard sampling data and the data was stratified by west coast (division VIa) and east coast (sub area IV). Discard numbers at age were supplied for cod, haddock, whiting and saithe if landings came from the above areas and gear category was one covered by the sampling scheme.

Landed weights were differentiated according to the data specification but no distinction could be made between mesh size categories in terms of proportions at age in the landings and discards, or in terms of the ratio of discards to landings. In addition, pooled age-length keys mean age/length relationship are common across most gears.

For data prior to 2009 adhoc fill-ins were used for missing discard sampling strata and saithe discards were not available in some years. For data from 2009 only annual discard data is available, i.e. comparisons of discard ratios can not be made between quarters.

Vessels <10m: No specific consideration is given to estimating discards for vessels < 10m and discard sampling staff tend not to sail on vessels in the 10 metre and under category. In 2003 the Scottish Fisheries Statistics showed landings of the main commercial demersal species from vessels <=10 m to be below the level where sampling intensities as defined in Appendix XV (Section H) of regulation (EC) 1639/2001 (Table 2) requires sampling to be carried out. Estimation of demersal discards for vessels <10m is based on the assumption that all vessels targeting Nephrops and operating in the same sampling area have the same catching and discarding characteristics.

4.3.2 Data availability Table B nominal fishing effort 2000-2011

Table 4.3.2.1 Overview of the effort data submission for the 2012 Fishing Effort Regimes data call. In bold the dates when effort data where submitted after the official submission deadline (4th of May).

Country	Data Submission	First Submission (Deadline 4-May)	Last Submission (Meeting 24-September to 28-September)
BEL	DCF website	**31-May**	**12-Jun**
DEU	DCF website	3-May	
DNK	DCF website	3-May	**14-Jun**
ESP	none		
EST	DCF website	3-May	**12-Jun**
FIN	DCF website	3-May	
FRA	DCF website	4-May	
GBR	File in the meeting	**12-Jun**	**14-Jun**
GBR SCO	DCF website	3-May	
IRL	DCF website	4-May	
LTU	DCF website	2-May	
LVA	DCF website	3-May	
NLD	DCF website	**14-May**	**4-Sept**
POL	DCF website	27-Apr	**14-Jun**
PTR	DCF website	3-May	
SWE	DCF website	4-May	**24-May**

4.3.2.1 Belgium

Data submitted mainly for 2011. 151 records in total submitted. There were 35 records submitted with no mesh size information for trammels, gillnet and dredges. Specific condition reported for 2011 data was SBCIIIart5.

Belgium provided effort data (kw*days at sea) for 2003-2011 by rectangle and by quarter, for all relevant areas where the Belgian fleets are operational. Since 2003 effort (and landings) are split proportionally over the rectangles as effort became available by rectangle from logbook data. As Belgium does not have trip-by-trip information on the true mesh size for its fleets for 2003-2006, Belgium (as well as other countries) agreed to assume certain mesh sizes for its beam trawler fleets. Beamers operating in area VIIIa,b were assumed to use a 70-79 mm mesh size as this is the minimum legal mesh size in that area for beamers. For the North Sea, the trips were split according to the rectangles reported in the logbooks, and mesh sizes were allocated in line with Council Regulation (EC) N° 2056/2001. This regulation stipulates that beam trawlers are prohibited to use less than 120 mm in ICES Division IV to the north of 56° 00' N. Therefore all beam trawl information from this part of ICES Division IV was accounted against an assumed >120mm mesh size. The same regulation also stipulates that within the rectangle with coordinates along the east coast of the UK between 55° 00' N and 56° 00' N and the points 55° 00' N – 05° 00' E and 56° 00' N – 05° 00' E, beam trawlers can use 100 to 119 mm mesh size. Here also it was assumed that the mesh size used by the Belgian Beam trawl fleet was 100-119 mm. For the rest of ICES Division IV (the southern part) a mesh size of 80-89 mm was assumed for the beam trawlers. Apart from these assumed mesh size which are based on rectangle information from logbooks, it was also assumed

that the shrimp fishery used a mesh size of 16-31 mm. The mesh size of the beam trawl fleets in the other area's was assumed to be 80-89 mm. Since 2007 mesh sizes used by beam trawls operating in different areas have been based on the true mesh sizes used on each trip.

Voyage information on the national data base calculates days at sea based on the voyage start date and the voyage end date. For example, a voyage starting on one date and returning (landing) the following day will accrue 2 days at sea. Each day a vessel is at sea is counted only once with the effort details allocated according to the longest voyage on that date. Nominal effort in kwdays is calculated as days at sea multiplied by the power of the vessel in kilowatts at the voyage landing date. Activity and gear is assessed daily; where activity in a single day covers more than one area or more than one gear; that day's effort is allocated completely to the area/gear with the longest activity that day.

The Belgian gear categories are: beam, dredge, gill, longline, otter, and trammel. For trammel nets, no assumptions of mesh sizes were made. Specific condition reported for 2011 data was SBCIIIart5 for all Belgian vessels operating in areas 8a and 8b.

Belgium did not provide any information for vessels under 10m.

4.3.2.2 Denmark

Danish data were submitted on time, and with the requested information for all tables. Tables A-D were submitted for 2011 only and appended to the previous time series. As in previous years, some few records did not pass the Data Submission filters when some information on e.g. gear, mesh size or fishing area was missing, but these records represent only a very small proportion of the reported Danish fisheries activities.

However, some issues were discovered during the course of the EWG for tables A-D. A minor one was corrected straight away and resubmitted during the early days of the meeting. Three other issues are to be mentioned:

- The reporting of Fully Documented Fishery is particularly ambiguous in the data call. Denmark interpreted it as such as that FDF records should be reported separately only (and therefore substracted from the total estimate within the same strata). The data call doesn't make it explicit enough that FDF should be actually summed up twice. As a consequence of this ambiguity, all Danish catches and effort figures in the specon "none" where some FDF fisheries are involved were by inadvertence underestimated. This misinterpretation was also present in the 2011 report of the STECF, but the extent of FDF fisheries was lesser in 2010 than in 2011 and this was therefore not noticed. This issue was manually addressed by the STECF EWG for all tables A-E and all years, leading to more accurate reporting in 2012.

- The data regarding small vessels (<10m in Annex IIa and <8m in Baltic) was observed to be erroneous (and thus largely underestimated) for data up to 2009

- Fishing activity (days at sea) in the Baltic up to 2007 is missing.

Denmark will make sure that these will be accounted for in future submissions, and underlines also the absolute need to remove all ambiguities and potential sources of misinterpretation in future data calls.

STECF EWG 12-12 noted that the Danish 2011 submission does not cover the special conditions BACOMA or T90.

4.3.2.3 Estonia

STECF EWG 12-12 noted that the data provided are only for vessels >=12m.

4.3.2.4 Finland

Finish data were submitted in an inconsistent format together with a hint towards the data confidentiality clause in the DCF. STECF EWG 12-12 could not make use of the Finish data given its specific ToR.

4.3.2.5 France

No fishing activity data for 2000 – 2009. No fishing capacity data at all (asked as kW or GT depending of the area, would be easier to fill if it was duplicated in kW and GT). Some missing area information was evident.

4.3.2.6 Germany

Germany provided fleet specific effort data for 2000-2010 in the requested formats derived from official logbook data. However, data on vessels <10m in the North Sea and <8m in the Baltic do not cover all vessels and trips because these vessels normally do not have to fill out logbooks. For the scientific evaluations in this report, the calculation procedure follows closely the description in the STECF technical report "Some technical guidance towards national fleet specific fishing effort and catch data aggregation" (ISBN 978-92-79-12134-0). This implies a calculation of kw-days based on calendar days and effort related to rescue operations etc. are not subtracted. The data consider the aggregation by quarter, area, gear, mesh size, and existing derogations including special conditions of 8.1.a, 8.1.c, 8.1.d, 8.1.e and 8.1.f for the years 2000-2008. For 2009 onwards the special conditions from the new cod management plan are used.

4.3.2.7 Ireland

Ireland provided fleet specific kW*days-at-sea, GT*days-at-sea, and vessel numbers for 2000-2011 in the requested aggregation format, derived from the national logbook database (IFIS) for vessels ≥10 meters in length. The following special condition information was supplied: none, CPart13, CPart11 and DEEP. SPECON DEEP is a duplication of effort within the relevant areas. Days-at-sea data were constructed following the methodology guidelines provided by the Joint Research Council at a meeting held by the Commission in February 2009 were followed. Only one gear and area combination is applied to any one vessel day assigned according to the dominant fishing activity.

A revised dataset was submitted in 2012 for all previous years due to ongoing revisions and improvements within the national database from 2003.

Fishing activity and fishing capacity were not provided as Ireland does not operate within the areas for which this data was requested.

Mesh size information was only available from 2003 onwards.

Days-at-sea effort for 2000-2002 is presented as a calculated proxy, obtained from the average ratio of operational fishing days to days-at-sea by gear during 2003 to 2005.

Vessels less than 10m in length are not required to complete logbooks, and therefore no effort is available for these vessels.

It was not possible to accurately aggregate data to the level of EU, coast, and RFMO. Data was assigned according to the following: Where an EU category existed within an area, all data from that area was

categorised as EU, with the exception of ICES division X assumed to be RFMO. Those ICES divisions without an EU category where assumed as 1 coast and 2 coast.

4.3.2.8 Latvia

STECF EWG 12-12 noted that 2003 – 2008 data for fleet specific effort for small boats (<8m) were not provided, but 2005-2011 data for fishing activity are provided (if vessel don't have KW that's mean his effort will be zero).

4.3.2.9 Lithuania

No comments.

4.3.2.10 The Netherlands

The Netherlands provided effort data for 2011. No updates for previous years were submitted. The data was provided in the requested format using the official logbook data for vessels < 10 m, >= 10 <=15 m and >15 m. During the meeting it appears that fishing activity information for area 7e was missing, not only for 2011 but also for previous years. It was agreed that this data will be submitted after the meeting. Apart from this issue the data is considered to be reliable. In reply to the comment of the missing fishing activity data, a re-submission of the 2011 effort data took place on the 4th of September 2012 where values for fishing activity were included. The nominal effort values were kept unchanged. Comparing to the first submission of the effort data, optional fishing capacity values were not submitted.

4.3.2.11 Poland

STECF EWG 12-12 notes that a different method of estimation of mesh size ranges in 2011 (compared to the previous years) caused inconsistent mesh size classes, which used to be “110-156” in 2004-2010 period. This mostly concerns vessels under 10 meters. Other variables seem to be very consistent across years.

4.3.2.12 Portugal

Portugal provided kW*days, GT*days and number of vessels for 2000-2011 in the requested aggregation format, derived from the national logbook database for vessels ≥10 meters in length. Data are provided by quarter, vessel length, gear, mesh size range, area and special condition.

No data on allowed activity were provided.

Data on fishing activity and fishing capacity were provided for the regulated gears and for specon=NONE (under effort restrictions).

Vessels < 10 meters are not required to complete logbooks. Effort of these vessels was estimated based on sales records and data is not available for all fields of the data call.

4.3.2.13 Spain

Spain did not provide data this year and in 2011.

4.3.2.14 Sweden

Nominal effort data has been submitted in the required format for the years 2000-2011. Nominal effort data for vessels <10m LOA is not considered reliable until 2009 and this will be corrected until next year´s meeting.

4.3.2.15 United Kingdom

Data for 2011 were submitted during the experts meeting, and an error relating to the recording of fully documented fisheries effort under the IIA regime area 3b was identified and corrected for 2010 and 2011. This resulted in an increase in effort for 2010 under Cpart13 (TR1) and None (GN1 and small amounts for unregulated gears) categories. A total of 3825 records were submitted or updated. A number of records were submitted with missing mesh sizes for pots and dredges where mesh sizes are not applicable. Some records with both area BSA and specific condition DEEP submitted and ignored in the analysis. Specific conditions reported were DEEP, CPart13 and FDFIIA.

Scotland: New data was submitted for 2011 for all the fleets for vessels 10m and over and for vessels under 10 meters. Scotland supplies data where records present no gear type information and/or no mesh size information for the purpose of data completeness. As in previous years there were records for area BSA and specific condition DEEP which were ignored in the analysis. Specific conditions reported were DEEP, FDFIIA, CPart11 and CPart13. Any effort in the Cod Recovery Zone for TR1 and TR2 gears was assigned to special condition CPart13.

Vessels <10m: For vessels <10m effort is considered under reported 2000-2005 because of under reporting of POTS and shell fishing by hand. The <10m effort data for Scottish registered vessels 2000-2008 excludes voyages landing into ports in England and other non-Scottish areas of the UK. Scottish under 10m boats are known to use more than one type of gear on individual trips or within a quarter and multiple counting of boats is therefore significant.

4.3.3 Data availability Table C spatial fishing effort 2003-2011

Table 4.3.3.1 Overview of the spatial effort data submission for the 2012 Fishing Effort Regimes data call. In bold the dates when spatial effort data where submitted after the official submission deadline (4th of May).

Country	Data Submission	First Submission (Deadline 4-May)	Last Submission (Meeting 11-June to 15-June)
BEL	DCF website	**31-May**	**4-Jun**
DEU	DCF website	3-May	
DNK	DCF website	3-May	**14-Jun**
ESP	none		
EST	DCF website	3-May	
FIN	DCF website	3-May	
FRA	DCF website	4-May	

GBR	File in the meeting	**12-Jun**	**14-Jun**
GBR SCO	DCF website	3-May	
IRL	DCF website	4-May	
LTU	DCF website	2-May	
LVA	DCF website	3-May	
NLD	DCF website	**14-May**	**17-May**
POL	DCF website	27-Apr	**13-Jun**
PTR	DCF website	3-May	
SWE	DCF website	4-May	**24-May**

4.3.3.1 Belgium

Data submitted only for 2011. No updates for previous years' data. In total, 573 records were submitted. There were 50 records with missing mesh size information for gears such as trammels, gillnets and dredges. Specific condition reported for 2011 data was SBCIIIart5.

Belgium: Belgium provided effective effort by ICES statistical rectangle in units of hours trawled for the period 2003-2011, derived from the official logbook databases for all vessels ≥10 meters. The data covers all areas in which the Belgian fleets are active and conforms to the requested aggregation, by quarter, area, gear and mesh sizes. No spatial effort information is available for vessels less than 10m in length.

Trawled hours were calculated by summing fishing time to the aggregation level requested in the data call. To ensure consistency between datasets, the same base operational logbooks data was used as for the aggregation of days-at-sea effort.

As Belgium does not have trip-by-trip information on the true mesh size for its fleets for 2003-2006, Belgium (as well as other countries) agreed to assume certain mesh sizes for its beam trawler fleets. Beamers operating in the Bay of Biscay (VIIIa,b) were assumed to use a 70-79 mm mesh size as this is the minimum legal mesh size in that area for beamers. For the North Sea, the trips were split according to the rectangles reported in the logbooks, and mesh sizes were allocated in line with Council Regulation (EC) N° 2056/2001. This regulation stipulates that beam trawlers are prohibited to use less than 120 mm in ICES Division IV to the north of 56° 00' N. Therefore all beam trawl information from this part of ICES Division IV was accounted against an assumed >120mm mesh size. The same regulation also stipulates that within the rectangle with coordinates along the east coast of the UK between 55° 00' N and 56° 00' N and the points 55° 00' N – 05° 00' E and 56° 00' N – 05° 00' E, beam trawlers can use 100 to 119 mm mesh size. Here also it was assumed that the mesh size used by the Belgian Beam trawl fleet was 100-119 mm. For the rest of ICES Division IV (the southern part) a mesh size of 80-89 mm was assumed for the beam trawlers. Apart from these assumed mesh size which are based on rectangle information from logbooks, it was also assumed that the shrimp fishery used a mesh size of 16-31 mm. The mesh size of the beam trawl fleets in the other area's was assumed to be 80-89 mm. Since 2007 mesh sizes used by beam trawls operating in different areas have been based on the true mesh sizes used on each trip.

The Belgian gear categories are: beam, dredge, gill, longline, otter, and trammel. For trammel nets, no assumptions of mesh sizes were made. Specific condition reported for 2011 data was SBCIIIart5 for all Belgian vessels operating in areas 8a and 8b.

Belgium did not provide any information for vessels under 10m.

4.3.3.2 Denmark

Danish data were submitted on time, and with the requested information for all tables. Tables A-D were submitted for 2011 only and appended to the previous time series. As in previous years, some few records did not pass the Data Submission filters when some information on e.g. gear, mesh size or fishing area was missing, but these records represent only a very small proportion of the reported Danish fisheries activities.

However, some issues were discovered during the course of the EWG for tables A-D. A minor one was corrected straight away and resubmitted during the early days of the meeting. Three other issues are to be mentioned:

- The reporting of Fully Documented Fishery is particularly ambiguous in the data call. Denmark interpreted it as such as that FDF records should be reported separately only (and therefore substracted from the total estimate within the same strata). The data call doesn't make it explicit enough that FDF should be actually summed up twice. As a consequence of this ambiguity, all Danish catches and effort figures in the specon "none" where some FDF fisheries are involved were by inadvertence underestimated. This misinterpretation was also present in the 2011 report of the STECF, but the extent of FDF fisheries was lesser in 2010 than in 2011 and this was therefore not noticed. This issue was manually addressed by the STECF EWG for all tables A-E and all years, leading to more accurate reporting in 2012.

- The data regarding small vessels (<10m in Annex IIa and <8m in Baltic) was observed to be erroneous (and thus largely underestimated) for data up to 2009

- Fishing activity (days at sea) in the Baltic up to 2007 is missing.

Denmark will make sure that these will be accounted for in future submissions, and underlines also the absolute need to remove all ambiguities and potential sources of misinterpretation in future data calls.

STECF EWG 12-12 noted that the Danish 2011 submission does not cover the special conditions BACOMA or T90.

4.3.3.3 Estonia

STECF EWG 12-12 noted that data were provided only for vessels >=12m.

4.3.3.4 Finland

Finish data were submitted in an inconsistent format together with a hint towards the data confidentiality clause in the DCF. STECF EWG 12-12 could not make use of the Finish data given its specific ToR.

4.3.3.5 France

The EWG 12-12 noted some missing area and rectangle information especially at this level of desegregation (available for the ICES division but not for the statistical rectangle information).

4.3.3.6 Germany

No comments.

4.3.3.7 Ireland

Ireland provided effective effort by ICES statistical rectangle in units of hours fished for the period 2003-2011 in the requested aggregation format, derived from the national logbook database (IFIS) for vessels ≥10m in length. Hours fished were calculated by summing fishing time reported within the logbook operations. To ensure consistency between datasets, the same base operational logbooks data was used as for the aggregation of days-at-sea effort. The following special condition information was supplied: none, CPart13, CPart11 and DEEP. SPECON DEEP is a duplication of effort within the relevant areas.

No spatial effort information is available for vessels less than 10m in length.

It was not possible to accurately aggregate data to the level of EU, coast, and RFMO. Data was assigned according to the following: Where an EU category existed within an area, all data from that area was categorised as EU, with the exception of ICES division X assumed to be RFMO. Those ICES divisions without an EU category where assumed as 1 coast and 2 coast.

4.3.3.8 Latvia

STECF EWG notes that 2003 – 2008 data for fleet specific effort for small boats (<8m) were not provided, but 2005-2011 data for fishing activity are provided (if vessels don't have KW that's mean his effort will be zero).

4.3.3.9 Lithuania

No comments.

4.3.3.10 The Netherlands

The Netherlands only provided effort by rectangle data for 2011. No updates for previous years were submitted. The data was provided in the requested format using the official logbook data for vessels < 10 m, >= 10 <=15 m and >15 m. The data is considered to be reliable.

4.3.3.11 Poland

STECF EWG 12-12 notes that relative changes of the total effective effort seem to be consisted across the years. Mesh size data breakdown for 2011 is not comparable with previous years because of different aggregation method used (as described above).

4.3.3.12 Portugal

Portugal provided effective effort (in hours) by rectangle for the period 2003-2011 for vessels ≥ 10 meters with the aggregation requested by the data call, based on logbook data.

No spatial effort information is available for vessels < 10 meters, since they are not required to complete logbooks.

4.3.3.13 Spain

Spain did not provide data this year and in 2011.

4.3.3.14 Sweden

Specific effort data by rectangle has been submitted in the required format for the years 2003-2011.

4.3.3.15 United Kingdom

Data for 2011 were submitted during the experts meeting, and an error relating to the recording of fully documented fisheries effort under the IIA regime area 3b was identified and corrected for 2010 and 2011. This resulted in an increase in effort for 2010 under Cpart13 (TR1) and None (GN1 and small amount for unregulated gears) categories. In total, 14059 records were submitted or updated. There were a number of records for pots and dredges with missing mesh size information; records with area BSA and specific condition DEEP were also present and ignored during the analysis. Specific conditions reported were DEEP, CPart13 and FDFIIA.

Scotland: New data was submitted for 2011 for all the fleets for vessels 10m and over and for vessels under 10 meters.

Effort on voyages fishing in more than one rectangle is allocated according to logbook data. The hours fished entries are simply days at sea data multiplied by 24. This is because hours fished information has been proven unreliable from Scottish vessels (not a required field in logbooks).

Scotland supplies data where records present no gear type information and/or no mesh size information for the purpose of data completeness. As in previous years there were records for area BSA and specific condition DEEP which were ignored in the analysis. Specific conditions reported were DEEP, FDFIIA, CPart11 and CPart13.

4.3.4 Data availability Table D fishing Capacity in the Baltic Sea 2003-2011

Table 4.3.4.1 Overview of the capacity data submission for the 2012 Fishing Effort Regimes data call. In bold the dates when capacity data where submitted after the official submission deadline (4th of May).

Country	Data Submission	First Submission (Deadline 4-May)	Last Submission (Meeting 11-June to 15-June)
DEU	DCF website	3-May	
DNK	DCF website	3-May	
EST	DCF website	3-May	
FIN	DCF website	3-May	
LTU	DCF website	2-May	
LVA	DCF website	3-May	
POL	DCF website	2-May	
SWE	DCF website	4-May	

4.3.4.1 Denmark

Danish data were submitted on time, and with the requested information for all tables. Tables A-D were submitted for 2011 only and appended to the previous time series. As in previous years, some few records did not pass the Data Submission filters when some information on e.g. gear, mesh size or fishing area was missing, but these records represent only a very small proportion of the reported Danish fisheries activities.

However, some issues were discovered during the course of the EWG for tables A-D. A minor one was corrected straight away and resubmitted during the early days of the meeting. Three other issues are to be mentioned:

- The reporting of Fully Documented Fishery is particularly ambiguous in the data call. Denmark interpreted it as such as that FDF records should be reported separately only (and therefore substracted from the total estimate within the same strata). The data call doesn't make it explicit enough that FDF should be actually summed up twice. As a consequence of this ambiguity, all Danish catches and effort figures in the specon "none" where some FDF fisheries are involved were by inadvertence underestimated. This misinterpretation was also present in the 2011 report of the STECF, but the extent of FDF fisheries was lesser in 2010 than in 2011 and this was therefore not noticed. This issue was manually addressed by the STECF EWG for all tables A-E and all years, leading to more accurate reporting in 2012.

- The data regarding small vessels (<10m in Annex IIa and <8m in Baltic) was observed to be erroneous (and thus largely underestimated) for data up to 2009

- Fishing activity (days at sea) in the Baltic up to 2007 is missing.

Denmark will make sure that these will be accounted for in future submissions, and underlines also the absolute need to remove all ambiguities and potential sources of misinterpretation in future data calls.

4.3.4.2 Estonia

STECF EWG 12-12 notes that data for vessels <12 m were not provided.

4.3.4.3 Finland

Finish data were submitted in an inconsistent format together with a hint towards the data confidentiality clause in the DCF. STECF EWG 12-12 could not make use of the Finish data given its specific ToR.

4.3.4.4 Germany

Data on Capacity in the Baltic was provided as requested by the data call from logbook information. It was ensured that vessels do not count twice to get a realistic overview on fleet capacity. The full time series is covered.

4.3.4.5 Latvia

No comments.

4.3.4.6 Lithuania

No comments.

4.3.4.7 Poland

STECF 12-12 notes that relative data provisions and estimated changes between years look reliable and consistent.

4.3.4.8 Sweden

Fisheries capacity data of active vessels in the Baltic Sea has been submitted in the required format for 2011.

4.3.5 Data availability Table E spatial landings 2003-2011

Table 4.3.5.1 Overview of the spatial landings data submission for the 2012 Fishing Effort Regimes data call. In bold the dates when spatial landings data where submitted after the official submission deadline (4th of May).

Country	Data Submission	First Submission (Deadline 4-May)	Last Submission (Meeting 11-June to 15-June)
BEL	DCF website	**31-May**	**4-Jun**
DEU	DCF website	4-May	
DNK	DCF website	3-May	**14-Jun**
ESP	none		
EST	DCF website	3-May	4-May
FIN	DCF website	3-May	
FRA	DCF website	**8-Jun**	**11-Jun**
GBR	File in the meeting	**13-Jun**	**15-Jun**
GBR SCO	DCF website	3-May	4-May
IRL	DCF website	4-May	
LTU	DCF website	2-May	
LVA	DCF website	3-May	**15-May**
NLD	DCF website	**25-May**	
POL	DCF website	2-May	**14-Jun**
PTR	DCF website	3-May	4-May
SWE	DCF website	4-May	**24-May**

4.3.5.1 Belgium

A total number of 41 646 records were submitted for 2003-2011. There were 1 874 records with missing mesh size information for gear types such as trammels, dredges and gillnets. Moreover, many records regard species

that are not requested in the official data call, like BLL, RJN, RJM, RJC and RJH. Specific condition reported for 2003-2011 data was SBCIIIart5.

Belgium provided fleet specific landings data for 2003-2011 derived from official logbook databases for all vessels ≥10 meters. The data covers all areas in which the Belgian fleets are active and conforms to the requested aggregation, by quarter, area, gear and mesh sizes.

The species provided are: anglerfish, brill, cod, dab, haddock, hake, lemon sole, Nephrops, plaice, saithe, pollack, sole, skates and rays, turbot and whiting. The age composition on landings for sole and plaice in ICES subdivisions IV, VIIa, VIId, VIIfg and sole in subdivision VIIIab have been provided by quarter for the Belgian beam trawlers. The total number of samples, as well as numbers aged and length measurements by quarter have been apportioned in the same ratio as total quarterly beam trawl fleet landings to annual landings.

As Belgium does not have trip-by-trip information on the true mesh size for its fleets for 2003-2006, Belgium (as well as other countries) agreed to assume certain mesh sizes for its beam trawler fleets. Beamers operating in the Bay of Biscay (VIIIa,b) were assumed to use a 70-79 mm mesh size as this is the minimum legal mesh size in that area for beamers. For the North Sea, the trips were split according to the rectangles reported in the logbooks, and mesh sizes were allocated in line with Council Regulation (EC) N° 2056/2001. This regulation stipulates that beam trawlers are prohibited to use less than 120 mm in ICES Division IV to the north of 56° 00' N. Therefore all beam trawl information from this part of ICES Division IV was accounted against an assumed >120mm mesh size. The same regulation also stipulates that within the rectangle with coordinates along the east coast of the UK between 55° 00' N and 56° 00' N and the points 55° 00' N – 05° 00' E and 56° 00' N – 05° 00' E, beam trawlers can use 100 to 119 mm mesh size. Here also it was assumed that the mesh size used by the Belgian Beam trawl fleet was 100-119 mm. For the rest of ICES Division IV (the southern part) a mesh size of 80-89 mm was assumed for the beam trawlers. Apart from these assumed mesh size which are based on rectangle information from logbooks, it was also assumed that the shrimp fishery used a mesh size of 16-31 mm. The mesh size of the beam trawl fleets in the other area's was assumed to be 80-89 mm. Since 2007 mesh sizes used by beam trawls operating in different areas have been based on the true mesh sizes used on each trip.

The Belgian gear categories are: beam, dredge, gill, longline, otter, and trammel. For trammel nets, no assumptions of mesh sizes were made. Specific condition reported for 2003-2011 data was SBCIIIart5 for all Belgian vessels operating in areas 8a and 8b.

Belgium did not provide any information for vessels under 10m.

4.3.5.2 Denmark

Danish data were submitted on time, and with the requested information for all tables. Tables A-D were submitted for 2011 only and appended to the previous time series. As in previous years, some few records did not pass the Data Submission filters when some information on e.g. gear, mesh size or fishing area was missing, but these records represent only a very small proportion of the reported Danish fisheries activities.

However, some issues were discovered during the course of the EWG for tables A-D. A minor one was corrected straight away and resubmitted during the early days of the meeting. Three other issues are to be mentioned:

- The reporting of Fully Documented Fishery is particularly ambiguous in the data call. Denmark interpreted it as such as that FDF records should be reported separately only (and therefore substracted from the total estimate within the same strata). The data call doesn't make it explicit enough that FDF should be actually summed up twice. As a consequence of this ambiguity, all Danish catches and effort figures in the specon "none" where some FDF fisheries are involved were by inadvertence underestimated. This misinterpretation was also present in the 2011 report of the STECF, but the extent of FDF fisheries was lesser in 2010 than in 2011 and this was therefore not noticed. This issue was manually addressed by the STECF EWG for all tables A-E and all years, leading to more accurate reporting in 2012.

- The data regarding small vessels (<10m in Annex IIa and <8m in Baltic) was observed to be erroneous (and thus largely underestimated) for data up to 2009

- Fishing activity (days at sea) in the Baltic up to 2007 is missing.

Denmark will make sure that these will be accounted for in future submissions, and underlines also the absolute need to remove all ambiguities and potential sources of misinterpretation in future data calls.

STECF EWG 12-12 noted that the Danish 2011 submission does not cover the special conditions BACOMA or T90.

4.3.5.3 Estonia

STECF EWG 12-12 notes that the mesh sizes are inconsistent with the data call for vessels <12 m.

4.3.5.4 Finland

Finish data were submitted in an inconsistent format together with a hint towards the data confidentiality clause in the DCF. STECF EWG 12-12 could not make use of the Finish data given its specific ToR.

4.3.5.5 France

France only submitted data for 2011. The EWG 12-12 noted some missing area and rectangle information especially at this level of desegregation (available for the ICES division but not for the statistical rectangle information).

4.3.5.6 Germany

Germany aggregated the landings from logbook information as requested by ICES statistical rectangles and covers the full time series. No complete data on the spatial distribution of landings could be provided for vessels <10m in the North Sea and <8m in the Baltic as these vessels are not mandatory to provide detailed logbook information. Description on special conditions from part A and B also apply to part E.

4.3.5.7 Ireland

Ireland provided landings by ICES statistical rectangle for the period 2003-2011 in the requested aggregation format, derived from the national logbook database (IFIS) for vessels ≥10m in length. Landings were calculated by summing live weights reported within the logbook operations as declared landings are not available at the level of statistical rectangle. To ensure consistency between datasets, the same base operational logbooks data was used as for the aggregation of declared landings within the Landings database (A). The following special condition information was supplied: none, CPart13, CPart11 and DEEP. SPECON DEEP is a duplication of effort within the relevant areas.

No spatial landings information is available for vessels less than 10m in length.

It was not possible to accurately aggregate data to the level of EU, coast, and RFMO. Data was assigned according to the following: Where an EU category existed within an area, all data from that area was

categorised as EU, with the exception of ICES division X assumed to be RFMO. Those ICES divisions without an EU category where assumed as 1 coast and 2 coast.

4.3.5.8 Latvia

No comments.

4.3.5.9 Lithuania

No comments.

4.3.5.10 The Netherlands

No comments.

4.3.5.11 Poland

Comparison of 2011 mesh size data with 2004-2010 shows that they are not consistent and significantly different. Neither mesh size nor SPECON (BACOMA window, T90) information were available from the database for 2004-2010. Thus these information were estimated based on expert knowledge and assumptions. Targeted species assemblages (métier), actually fish species caught and gear used were taken into account to identify mesh size. In 2011 data about mesh size were calculated based on actual information derived from logbooks, this caused that many "-1" values (missing values) which were reported for 2001-2010, become known and changed into "16-31" or "32-54" in 2011.

4.3.5.12 Portugal

Portugal provided landings by species and by rectangle for the period 2003-2011 for vessels ≥ 10 meters with the aggregation requested by the data call, based on logbook data.

No spatial effort information is available for vessels < 10 meters, since they are not required to complete logbooks. No quality check was performed.

4.3.5.13 Spain

Spain did not provide data.

4.3.5.14 Sweden

Landings data by rectangle has been submitted in the required format for the years 2003-2011.

4.3.5.15 United Kingdom

Data for 2003-2011 were submitted during the experts meeting, as specified in the data call. An error relating to the recording of fully documented fisheries effort under the IIA regime area 3b was identified, but not corrected during the meeting. There is known to be an underestimate of effort for TR1 for CPart13 and GN1 (and small amount for non-regulated gears) for SPECON "None" under area 3b which will be corrected for the September meeting. Specific conditions reported were DEEP, CPart13 and FDFIIA.

Scotland: New data was submitted for 2003-2011 for all the fleets for vessels 10m and over and for vessels under 10 meters according to the data call. Specific conditions reported were DEEP (2003-2008), DEEP and CPart13 (2009) and DEEP, FDFIIA, CPart11 and CPart13 (2010-2011).

4.3.6 Fisheries specific landing and effort data 2003-2010 of small boats (< 8m or <10m)

This STECF EWG 12-12- report provides an overview of landings and effort data provided by the experts regarding their national fisheries of small vessels<8m or <10m, which are not obliged to report their landings through logbooks but rather do landings declarations.

Previously, information on small vessels has been provided in the reports only as a series of individual country reports describing activities and landings. In this report individual country information is again provided where available – new information is provided from several countries. An attempt is also made to compile available information for each area into overall figures. Since not all countries were able to fulfil this part of the data call, the aggregate estimates for each region of the cod recovery zone must be considered as minimum estimates. Nevertheless, they begin to give an idea of the scale of landings contributed by these smaller classes of vessel and can be used to comment on the likely relative importance compared with the regulated vessels.

Member States' data submissions for small boats are summarized in the previous sections by data table A-E, sections 4.3.1-5, respectively.

4.4 Estimation of fisheries specific international landings and discards

The estimation of fisheries specific international landings and discards is based on linking the information about fleet specific discards and catch and discards at age among countries and replacing poor or lacking values with aggregated information from other countries.

Reported data by country are aggregated by fisheries properties and raised to the officially reported landings or discards in the SGDFF 2004 (ICES 2004) format. Fisheries definitions are based on area, year, quarter, gear, mesh size groups, special conditions as defined in Council Reg. 41/2007 Annexes IIA-C and 57/2011 Annexes IIA-C or the multiannual management plans, and national fisheries (metiers) definitions.

The data management and estimation procedures follow the simple raising strategies outlined below :

- Data management:

  The fleets are classified to their management areas, years, quarters and effort regulated gear groups disregarding the countries and fisheries (metiers).

- Estimation of discard rates by fleet (DR):

  Let the following notation be: D=discards, L= landings, *snf* = sampled national fleet, *unf* = unsampled or poorly sampled national fleet.

  A poorly sampled fleet is defined as such when $SOP_{snf} < 0.75$ or $SOP_{snf} > 1.25$

The available landings and discards are aggregated (summed) by fleets and mean discard rates are calculated:

$$DR = \frac{\sum_{snf} D_{snf}}{\sum_{snf} (L_{snf} + D_{snf})}$$ with $D_{snf} \geq 0$ and with $L_{snf} + D_{snf} > 0$ otherwise 0 (means no catch)

Fleet specific discard amounts are calculated when no discard information is available by

$$D_{unf} = \frac{L_{unf}.DR}{(1 - DR)}$$ when D_{unf} is null (empty)

Fleets without any discards information remain as such.

- Estimation of landings in numbers and mean weight at age for non or poorly sampled national fleets

  Let *i* be the age reference

  Landings in numbers ($N_{snf,i}$) and mean weight at age ($W_{snf,i}$) are aggregated by sampled fleets when $SOP_{snf} \geq 0.75$ and $SOP_{snf} \leq 1.25$.

  Raising of numbers and mean weights at ages 0-11 to non or poorly sampled fleets by

$$N_{unf,i} = \frac{\sum_{snf} (N_{snf,i}).L_{unf}}{\sum_{snf} L_{snf}}$$

$$W_{unf,i} = mean(W_{snf,i})$$

  The mean weights are unweighted and an appropriate weighing procedure, i.e. number of fish measured, should be explored.

  Fleets without any landings at age information remain as such.

- Estimation of discards in numbers and mean weight at age for non or poor sampled fleets

  Discards in numbers ($N_{snf,i}$) and mean weight at age ($W_{snf,i}$) are aggregated by sampled fleets when $SOP_{snf} \geq 0.75$ and $SOP_{snf} \leq 1.25$ along the same procedure as for the landings.

  Raising of numbers and mean weights at ages 0-11 to non or poorly sampled fleets by

$$N_{unf,i} = \frac{\sum_{snf} (N_{snf,i}).D_{unf}}{\sum_{snf} D_{snf}}$$

$$W_{unf,i} = mean(W_{snf,i})$$

The mean weights are unweighted and an appropriate weighing procedure, i.e. number of fish measured, should be explored.

Fleets without any landings at age information remain as such.

An example of this raising procedure is given in Table 15.2.3.2 under the header "Discards", the values between parenthesis are the estimated values.

- Catch at age estimation including discards

  Catches by fleets are estimated as the sum of landings and discards. Missing discards are ignored.

  Catches at ages 0-11 in numbers are estimated as the sum of landings at age in numbers and discards at age in numbers. Missing discards are ignored.

  Mean weights at ages 0-11 are estimated at weighted means (according to ratios of landings at age and discards at age to catches at age).

  Finally, all fleets' catches and catches at ages in numbers and mean weights are aggregated finally over management areas, years and effort regulated gear groups.

  Fleets without any information on discards or landings at age and discards at age remain unchanged and need to be raised separately on an agreed basis in case that they constitute significant landings.

The EWG-11-11 notes that sampling of catch at sea including discards is expensive and difficult. This means that sampling coverage tends to be rather limited, and estimates of discards are subject to high uncertainty. This is true of all the discard data used here, and in some cases the discard estimates presented represent the first attempt to use the discard data from some fisheries in an advisory context. Where the coverage is considered adequate to estimate the overall catch compositions of specific fleets these are presented, but they are intended only to provide an approximate indication of fleet catch compositions. In cases where there are little data, the estimated discard rates may be biased and imprecise (Stratoudakis *et al.*, 1999). The mean weights are estimated as unweighted means. This results in a biased estimate. An appropriate weighing procedure, i.e. number of fish measured, should be explored.

EWG-11-11 further notes that the approach of discard estimation applied is generally consistent with the method used in the discard estimates published by the FAO (Kelleher, 2004). However, the group also notes that the design of a discard sampling scheme might differ depending on whether the objective was to estimate total discards, or discard for specific fleets. In the current context estimates from sampling schemes designed for the former purpose are being used for the latter purpose which again means the estimates should only be used with caution. Where this is the case, comparisons are made between the estimates of total discards used for assessment purposes, and the fleet-specific estimates used here.

With regard to age composition data, EWG-11-11 notes that the analyses presented here are intended to quantify the catch compositions of the various fleets and gears of interest. For this purpose it is the species compositions and the estimated landings and discards that are of primary importance, with the age compositions being only of secondary importance. Applying the age compositions to the national catches by fleet and gear is a complex process not least because it typically involves considerable filling-in to account for categories which do not correspond to those within national sampling schemes. It would make any future data compilation and analyses much more efficient if age composition data were not required. While there is clearly a trade-off between efficiency on one hand and providing additional information on the other, the group notes that in the current context the age composition data add little information. As a result it proposes that any future data requests and analyses should be restricted to age-aggregated information.

4.5 Treatment of CPUE data

In this report, EWG 12-16 presents CPUE by regulated gears in units of g/(kW*days). Where discard estimates are not available, the trends in LPUE (landings per unit of effort) are given in the same units. Unfortunately, discard information continues to be sparse or absent for some categories of gear in some areas. **The STECF EWG wishes to stress again that great care should be used in the interpretation of the discard and resulting catch data owing to the incomplete nature of information on discarded fish.**

EWG 12-12 notes that CPUE series are often interpreted and used as stock abundance indicator. However, EWG 12-12 emphasises that the presented trends in CPUE by fleets are subject to selective fishing strategies (area, gear, mesh size etc.) and thus maybe biased. On the other hand, CPUE derived from targeted fisheries may provide very useful information on stock abundance trends. Furthermore, it must be taken into consideration that the majority of the CPUE trends represent only overall weights in the landings (LPUE) without discards or with poorly estimated discards. Ideally, the CPUE should be based on age disaggregated abundance rather than overall weights and reflect technological creep when trends over longer periods are evaluated.

4.6 Ranking of gears on the basis of contribution to catches

Where required, EWG 12-12 presented the ranked contributions of the individual effort regulated gears to cod, plaice and sole catches for the years 2003 to 2011. There was discussion about whether the ranking should be based on a single recent year (possibly reflecting the most up to date importance of the different gear types in contributing to mortality of these species) or an average for a range of years (which allows for any aberrations in the series). A decision was taken to rank according to 2011. The data for other years are available for alternative analysis in the background spreadsheets.

The catch estimates are based on the sums of the landings and discards where available. EWG 12-12 considers the catch estimates as uncertain where fisheries lack discard estimates or they are poorly sampled. The ranking according to catch in numbers only considers derogations for which catch in numbers are available. **STECF EWG 12-12 wishes to stress again that great care should be used in the interpretation of the discard and resulting catch data owing to the incomplete nature of information on discarded fish.**

4.7 Summary of effort and landings by 'unregulated' gears

In the summary tables of effort a total value for a 'none' category is provided. This 'none' category represents

i) gear types and mesh sizes which are unregulated, i.e. non-regulated by effort in addition to

ii) unidentified mesh sizes. In the main effort summary tables, this category is not broken down into its constituent gears.

iii) the so-called derogation Swedish grid, which was encoded as IIA83b and CPart11, respectively. This gear configuration is explicitly exempted from the effort regime (R (EC) No 754/2009).

However, STECF EWG 12-12 has provided a break down of the main gears within the 'none' category in a dedicated subsection for each area. Information is given on effort (kW*days at sea) for gears such as 'beam', otter, pots, dredges etc, and for catches by these gears of key species (e.g. cod, plaice and sole). This analysis helps to identify which gears contribute significantly to landings of these species but which are not currently regulated.

With the adoption of the revised cod recovery plan towards the end of 2008 and the simplified list of regulated gears for which data are now collated, the compilation of the unregulated categories was more straightforward in 2009 onward and the data appear to be reliable.

It is important in making use of the data in this report, that the 'none' material is not counted more than once. It would be preferable to use data from the sections covering unregulated gears.

4.8 Presentation of spatial information on effective effort and landings

STECF EWG 12-12 notes that minimum geographic resolution in the available logbook information on landings and effective effort is by ICES rectangle and considers analyses to only be possible at that resolution at the present time. In a number of the smaller areas, however, this resolution is inadequate for describing any localised changes of effort distribution (for example, in the Kattegat) and finer scale is desirable. Increasing availability of VMS data should provide opportunities for improved resolution in due course. The effective effort values of certain nations were given in days fished which were then converted to trawled hours by applying a factor of 24. STECF EWG 12-12 notes that only major changes in the geographical distribution patterns should be given attention given the imprecision of the created data set. A full set of figures is available electronically but a selection of key gears is included in this report.

Figures use a common scale across years for a given gear group (e.g. TR1) but scales are unique to each category such that the colours assigned to statistical rectangles for category TR1 cannot be compared directly to those assigned for category TR2. Note that this year the scale used in the plots relates to the actual effort values (rather than the percentile method used in previous years).

4.9 Response of EWG 12-12 regarding the estimation of spatio-temporal patterns in catchability

STECF EWG 12-12 continued its considerations which started during STECF EWG 12-12 and adopted the definition of catchability (q) as the relationship between the catch rate (CPUE) and the true population size. Consequently, the unit of catchability is fish caught per fish available per effort unit and per time unit, or, in easier words, catchability can conceptually be considered as the probability of any single fish being caught (Jul-Larsen *et al*., 2003).

STECF EWG 12-12 notes that many factors are related to catchability, e.g. mainly fish abundance at a certain time in a certain area and gear efficiency (fishing power) including use of the gear and fishers' experience (Marchal *et al*., 2001). A standard solution to evaluate changes in catchability is therefore to compare catch rates from commercial and research fishing where the catchability of the research fishing is holding constant from year to year (Neis *et al*.,1999):

CPUE (fishery)/CPUE (survey) = q (fishery)/q (survey)

This catchability index has no units, as it represents the ratio of fish caught per fish available per effort unit and per time unit.

STECF EWG 12-12 identified the needs to estimate catchability coefficients and to undertake spatio-temporal analyses of them. The calculation of catchability indices for cod per ICES statistical square (rectangle) and year is derived from standardized and averaged ratios between CPUE by fishery and CPUE based on survey indices.

The estimation of catches by rectangle is derived from a raising procedure applied to landings data by stock, nation, fishery (effort regulated gear groups), year, quarter and rectangle to estimate discards and conclude on catches at this aggregation level. National landings by stock, fishery, year, quarter and rectangle were raised by average national discards rates obtained by stock, fishery, year and quarter without rectangle:

$$C_{\text{stock, nation, fishery, year, rectangle}} = \Sigma \left(L_{\text{stock, nation, fishery, year, rectangle}} / \left(1 - DR_{\text{stock, nation, fishery, year}}\right) \right),$$

where C denotes the catch in weight (t), L denotes the landings in weight (t), and DR denotes a specific average discard rate based on the DCF data submissions of landings and discards. Where the discard rate is unknown, landings figures were accepted as a best estimate of catches.

Average national commercial catch rates by stock, fishery, year and rectangle were then estimated from

$$CPUE_{stock, nation, fishery, year, rectangle} = C_{stock, nation, fishery, year, rectangle} / E_{stock, nation, fishery, year, rectangle},$$

where CPUE denotes the catch rates, C the estimated catch in weight (t) and E the fishing effort in units of fished hours.

The catchability index CA per stock, year and rectangle is then derived from the ratio between the averaged commercial CPUE values by stock, nation, fishery, year and rectangle, each of them divided by the CPUE from the respective average scientific survey CPUE in units of weight (kg). Both catch rate estimates, the commercial and the scientific ones, were made subject to log transformation in order to reduce the high variation between years and rectangles.

$$CA_{stock, year, rectangle} = \Sigma_n (\ln (1+CPUE_{stock, nation, fishery, year, rectangle}) / \ln(1+CPUE_{stock, survey, year, rectangle})) / n,$$

where n is the number of nation-fleet combinations. STECF EWG 12-12 has performed and presents spatio-temporal analyses of cod catchability for the Baltic Sea (areas A and B for the Eastern and Western cod stocks combined) and for the cod stock of the Skagerrak, North Sea, 2EU and Eastern Channel in sections 5.1.15 and 5.3.15, respectively. STECF EWG 12-12 notes that the resulting patterns of catchability in these specific management areas represent case studies and do not form the basis for any management advice. However, STECF 12-12 notes that the main and consistent finding in both management areas appears to be that cod catchability is more widely and evenly distributed compared with spatio-temporal patterns of fishing operations.

4.10 Required improvements of DCF data calls to support fishing effort regime evaluations

4.10.1 Species list given in Appendix 7 of the 2012 DCF fishing effort data call

STECF EWG 12-12 reviewed the species list given in Appendix 7 of the 2012 DCF fishing effort data call and notes that the DCF data call in 2012 to support fishing effort regime evaluations covers a long list of 122 species in Appendix 7, for which specific catch parameters are requested. EWG notes that some of the species are irrelevant and that the long list of species is exclusive of some relevant species regarding the Terms of Reference, which ask for the evaluation of the entire catch composition of defined fisheries. EWG 12-12 notes that this specific ToR regarding the quantification of the trends in the entire catch composition by fisheries is explicitly exhaustive, and any modification towards a limitation is regarded a significant relief to the implied workload for data extraction, compilation and evaluation at all levels from the data providers to the end users. However, STECF EWG 12-12 notes that the detailed resulting tables compiled under the DCF and providing fisheries specific information as digital appendixes to its reports are of increasing interest to many other scientific and management bodies.

As an approach to more precisely define the ToRs and the responses to them, STECF EWG 12-12 created a species lists in accordance to various major European fisheries regulations, i.e. species listed in the annual TAC and Quota regulations, defined deep sea species, pursuant to the DCF etc. Finally this approach increased the number of species to 311, for which quantitative information might be required in terms of potential contributions to catches of commercial fisheries operating in the maritime regions other than the Mediterranean and the Black Seas. The list of identified species is given as Appendix to this report and can be downloaded for the working group's web page: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12

STECF EWG 12-12 also discussed the potential pros and cons regarding a revision of the Appendix 7 towards a complete call for catch data of all species recorded in the national data bases. STECF EWG 12-12 has not concluded the implications of changes in the species list and therefore is unable to provide specific advice/

4.10.2 Additional parameter "fishing activity" to be considered

STECF EWG 12-12 notes that the DCF data call in 2012 to support fishing effort regime evaluations is not consistent with the ToR and thus its inability to fully address the tasks for the Baltic regime, i.e. to assess the fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2007). STECF EWG 12-12 notes that the DCF data call in 2012 does require data submissions of fishing activity in units of day absent from port by fishery (metier) in Table B but that this implies overestimation of days absent from port in cases where individual boats use more than one regulated gear during a fishing day. In order to avoid such a potential overestimation of days at sea, STECF EWG 12-12 recommends that the Effort Data Call for Table D in 2013 shall be amended. A specific fishing effort parameter called fishing activity in units of days at sea shall be added. The additional parameter shall be specific to country, year, vessel-length, area (A or B) and gear (regulated=REGGEAR or un-regulated=NONGEAR). STECF EWG would then be in position to fully address the ToR to estimate the uptake of maximum allowed fishing effort.

4.10.3 Additional special condition to be considered for the Western Channel

STECF EWG 12-12 notes that FDF has been implemented for sole in the Western Channel in 2012 (Council Reg N 43/2012, EU TAC and Quota regulation for 2012). STECF EWG 12-12 recommends to DG MARE that, if catches and effort und FDF in the Western Channel shall be analysed in 2013, the respective DCF fishing effort data call shall consider an additional specific code in Appendix 6 called "FDFIIC".

4.11 Response of EWG 12-12 regarding the additional ToRs

STECF EWG 12-12 notes that the additional ToRs are covering two major elements. The first element requests an evaluation of a particular method as proposed by STECF 12-13 EWG 12-07 to move from an F based approach to a catch based approach in Article 13 of the cod plan, which is interpreted as a proposal to change Article 13.

STECF EWG 12-12 notes that Article 13 does require and give the MS the competence to monitor and to manage the partial Fs of the regulated gear groups in year to justify buying back fishing effort, in particular related to paragraph 13.2.c.

STECF EWG 12-12 notes that Article 13 does not define how the monitoring and management of partial F shall be implemented, leaving the implementation in the competence of the MS. STECF EWG 12-12 notes that the implementation could be done through fisheries specific allocation of landings and discards as proposed by the method, but also through complementing allocations of fishing effort. Even technical measures are not excluded explicitly. The proposed method still may be seen as one example of how a MS might approach the task to monitor and manage the partial Fs in order to achieve its partial F target while there might be other solutions, given that there might be different national regulatory frameworks to allocate national fishing opportunities.

STECF EWG 12-12 notes that the consistent allocation of catch allocation by fisheries requires an analytical short term forecast. Consequently, the proposed method cannot be applied if such analytical forecast of catch and stock sizes is not available. Furthermore, the proposal is to apply partial Fs of the fisheries to derive catch allocations for these fisheries for the TAC year. Catch allocations would then represent stable relative proportions (relative stability). As such, the proposal does not cover the situations where a MS wishes to deviate from stable shares of catch possibilities but instead wants to promote one or more fisheries relative to others.

STECF EWG 12-12 notes that the proposed method will work if duly implemented. However, the method implies certain caveats, the major one being a lack of mixed fisheries rules (over quota discards are not limiting the fishing operations yet). The effect to control a target F would be undermined by over quota discards if the fishing operations are not terminated once a catch allocation has been exhausted. STECF EWG 12-12 notes that discard information must be correctly allocated and controlled, which is unlikely to be achievable given the uncertainty related to discard estimates. Also, it appears unlikely that age disaggregated landings and discards

are available in year due to logistic reasons and that thus an approximation of fisheries specific landings and discards allocations in weight may be considered. Other caveats, e.g. relative stability of quota shares, changes in allocations due to quota swaps, uncertainty in stock parameter estimations (Fs and related projected stock size, landings and discards) can be overcome through definitions like: take the starting values of the TAC year to be managed, in this case 2013.

The second element of the additional ToR deals with catch options for Kattegat and the Irish Sea cod stocks in 2013. Given the information available, STECF EWG 12-12 is unable to provide catch options in addition to the provisions of the cod plan and its recent amendments. STECF EWG 12-12 notes that in the specific case of the Irish Sea cod, the consequences of adaptations in landings and effort cannot be quantified, so measures may be interpreted as precautionary. STECF EWG 12-12 advises also to evaluate the implementation of improved cod selectivity in TR2 fisheries operating in the Irish Sea through existing technical options.

STECF EWG 12-12 notes that in the specific case of the Kattegat cod stock, there is a good correlation between major fisheries effort and harvest rates (TR2 of DNK and SWE), which indicates that further decreases in effort of regulated gears may have the effect to decrease fishing mortality. However, STECF EWG 12-12 notes that the effects of effort reductions of passive gears are difficult to estimate.

5 EVALUATIONS BY FISHING EFFORT MANAGEMENT REGIME

5.1 Baltic Sea effort regime evaluation in the context of the management plan for Baltic cod (Council Regulation (EC) No 1098/2007)

5.1.1 ToR 1.a Fishing effort in kWdays and GTdays by area, Member State and fisheries

Table 5.1.1.1 lists the trends in effort for gear categories defined in the cod management plan Council Regulation (EC) 1098/2007 in kW*days at sea for the whole Baltic. Table 5.1.1.2 lists the trends in effort by gear category, sub-area and member state. Table 5.1.1.3 lists effort trends by gear category and sub-area. Figures 5.1.1.1 – 5.1.1.6 show effort trends in regulated and unregulated gear categories by sub-areas.

In accordance with the TOR respective tables by gear-category, sub-area and member states in GT*days at sea (GT gross tonnage), activity (in days absent from port) and capacity (number of vessels) are available on the web site of the EWG. STECF EWG 1206 emphasises that the days at sea and number of vessels need to be interpreted with care and cannot be added across gear categories as the individual vessels may have been engaged in more than one of the defined fleets and thus could be multiple counted.

There have been marked reductions in effort measured in kW-days in 2004-2011both for regulated gears in accordance with Council Regulation (EC) 1097/2007 and unregulated gears. The total effort deployed in the Baltic in 2011 was 0.1% lower compared to 2004 and 6% higher compared with 2010 (Table 5.1.1.1).

A clear reduction in total effort could be observed for sub-area A. Figures 5.1.1.2 and 5.1.1.3 display the trends in area B. Only in area C the effort deployed with unregulated gears fluctuated with a slight decreasing trend (Figure 5.1.1.5). Since the majority of cod catches stem from areas A and B (see section below), the slight increase in total effort can be observed both for regulated and unregulated gears. Decrease in total effort in areas A and B most likely decreased the fishing pressure on Baltic cod.

Table 5.1.1.3 describes the relative annual effort dynamics in Baltic cod r-GILL and r-_OTTER fisheries in 2004-2011. The total effort showed a consistent decreasing trend in area A. A decrease could be observed also in area B, except for the 2010 and 2011 which resulted from effort deployed by r-OTTER equipped with T90. The effort dynamics in area C did not show any particular trend.

The effort dynamics in Sub-division 28.2 increased in 2011after the steady decrease due to increased r-OTTER effort (Figure 5.1.1.8)This increase, however, should be taken with caution since the information on r-OTTER may have been partly generated on the basis of effort deployed by other gears while choosing predominant fishing gear during the year for the vessels involved.

The decrease in total effort for the main gears catching cod in areas A and B (r-Otter, see section below) was obvious for all Member States (Table 5.1.1.2). When combining specon BACOMA and none, the reductions were most pronounced for Denmark (-66%) and Poland (-68%) in area A and most pronounced for Poland (-79%) and Germany (-49%) in area B. In contrast, the effort for r-Gill (the second most important gear, see section below) increased for Denmark and Germany in Area A (by 8% and 22% respectively) At the same time combined effort decreased for Latvia (-96%) and for Poland (49%). This indicates a certain shift between métiers. In area B the effort decreased also for r-Gill substantially for all member states (-78% and 76% for Poland and for Latvia respectively). The sharp increase of pelagic effort in 2004 – 2005, described in the Figure 5.1.1.5 can be explained by the inclusion of Estonian data from 2005-2010 which contained substantial pelagic effort.

In sub-division 28.2. only Latvia reported the information on effort deployed in r-GILL fishery. The effort has decreased over the period of 2004.2011 by 54% and for r-OTTER by 58% (Figures 5.1.1.7 - 5.1.1.8).

For area C the full time series of information for r-OTTER was not available to the group. The effort for r-_GILL decreased by 36% (Sweden). The use of BACOMA-trawls increased over the years (see Figures 5.1.1.2,

5.1.1.4 and 5.1.1.6;). However, as already mentioned several Member States were not able to identify vessels fishing with BACOMA-trawls from logbook data. Therefore, the increase in the usage of BACOMA-trawls is most likely underestimated substantially and trends are highly uncertain.

Table 5.1.1.1 Trend in nominal effort (kW*days at sea) by gear categories according to Council Regulation (EC) 1098/2007, 2004-2011. An "r" in front of the gear type indicates regulated gears. Gear types without an "r" are non-regulated gears. **Data from Sweden and Poland were only available from 2003 or 2004 respectively. Relative change from 2004 to 2011.**

REG GEAR COD	SPECON	2004	2005	2006	2007	2008	2009	2010	2011	rel.change
BEAM	none		132	1090	881	27566	16298	884	884	1.00
DEM_SEINE	none	50829	31212	20892	20597	12522	5372	4811	11826	-0.77
DREDGE	none	78384	72955	97700	110931	45088	57512	75229	56203	-0.28
GILL	none	2514485	2781576	2466038	2294202	2019364	1865438	1924751	1901761	-0.24
none	none	96938	176122	205696	192219	168134	194458	127777	64672	-0.33
OTTER	none	2822656	2413377	1927192	1656416	1339785	1538768	1241674	1094607	-0.61
PEL_SEINE	none	2499				3528	16467	13674	12645	4.06
PEL_TRAWL	none	14282170	57258796	42368403	37461943	41572322	38799075	28289930	24865258	0.74
POTS	none	1519123	1616487	1346062	1211896	1209974	894295	1047462	922060	-0.39
r-BEAM	BACOMA					3867				0.00
	none							129		0.00
r-DEM_SEINE	BACOMA			35178	46741	46182	62042	36621	52423	1.00
	none	403303	276935	262342	242811	181854	118870	92271	62908	-0.84
r-GILL	none	9845133	8661465	7761426	6637435	5995191	4830867	4165995	3746400	-0.62
r-LONGLINE	none	1441250	1761808	1696090	1007775	732603	905232	819419	792979	-0.45
r-OTTER	BACOMA	7988730	6623938	8680449	6533232	5485697	4054010	4218632	4574495	-0.43
	none	5994718	6118754	3559359	2548784	2434264	2125267	2130595	2265651	-0.62
	T90						9536	160701	276747	1.00
r-PEL_TRAWL	BACOMA	1185898	571002	1684466	1635610	854557	346595	199507	955700	-0.19
	none	249065	219558	122741	37349	3841	27748	13555	29491	-0.88
r-TRAMMEL	none	237643	474318	432987	502243	541596	605039	466697	418420	0.76
TRAMMEL	none	20495	31581	32540	31788	25999	11012	11965	10883	-0.47
Grand Total		48733319	89090016	72700651	62172853	62703934	56483901	45042279	42116013	-0.14

Table 5.1.1.2. Trend in nominal effort (kW*days at sea) by regulated gear categories and sub-area 2003-2011. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007. Data from Sweden and Poland were only available from 2003 and 2004 respectively.

ANNEX	REG AREA COD	REG GEAR COD	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bal	28.2	r-DEM_SEINE	1534	804					4091	3967	
Bal	28.2	r-GILL	128458	38171	62083	52887	52229	16129	15303	23211	17613
Bal	28.2	r-OTTER	44642	88489	84119	64123	60310	34048	19735	4865	36969
Bal	28.2	r-PEL_TRAWL	882		6850	5500	1100		2860		
sum	28.2		175516	127464	153052	122510	113639	50177	41989	32043	54582
Bal	A	r-BEAM	442					3867		129	
Bal	A	r-DEM_SEINE	367803	401601	268305	275983	276172	220254	161197	101984	68761
Bal	A	r-GILL	2167947	2210506	3653135	3467058	3183757	3026786	2445924	2106754	1929084
Bal	A	r-LONGLINE	191483	236379	581682	411697	302100	166180	209075	163111	177380
Bal	A	r-OTTER	5561992	5074850	5365949	4152545	4377571	3548982	2851999	2394024	2448090
Bal	A	r-PEL_TRAWL	36123	22733	72345	52777	40983	6994	2744	12155	8247
Bal	A	r-TRAMMEL	248170	227410	467483	424258	487380	530740	587949	462938	416319
sum	A		8573960	8173479	10408899	8784318	8667963	7503803	6258888	5241095	5047881
Bal	B	r-DEM_SEINE	729	1702	8630	21537	13380	7782	19715	26908	46570
Bal	B	r-GILL	3485435	7544106	4914900	4198363	3379065	2902673	2322045	1985715	1758949
Bal	B	r-LONGLINE	539794	1204871	1180126	1284393	705675	566343	696157	656308	615599
Bal	B	r-OTTER	3957948	8908598	7372711	8081809	4701617	4364577	3336814	4115904	4668803
Bal	B	r-PEL_TRAWL	68361	1412230	718215	1754430	1631976	851404	371599	200907	976944
Bal	B	r-TRAMMEL	12204	10233	6835	8464	14863	10856	17090	3759	2101
Bal	C	r-GILL	88826	90521	93430	96005	74613	65732	62898	73526	58367
Bal	C	r-LONGLINE	992					80		0	
Bal	C	r-OTTER			4032	5454	2828	6402			
Bal	C	r-TRAMMEL				265					
sum	B-C		8154289	19172261	14298879	15450720	10524017	8775849	6826318	7063027	8127333

Table 5.1.1.3. Relative annual effort dynamics in Baltic cod r-GILL and r- OTTER fisheries in 2004-2011.

REG GEAR COD	REG AREA COD	SPECON	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
r-GILL	28.2	none	0.63	-0.15	-0.01	-0.69	-0.05	0.52	-0.24
r-GILL	A	none	0.65	-0.05	-0.08	-0.05	-0.19	-0.14	-0.08
r-GILL	B	none	-0.35	-0.15	-0.20	-0.14	-0.20	-0.14	-0.11
r-GILL	C	none	0.03	0.03	-0.22	-0.12	-0.04	0.17	-0.21
r-OTTER	28.2	BACOMA	-0.05	-0.24	-0.06	-0.44	-0.42	-0.75	6.60
r-OTTER	A	BACOMA	0.58	2.49	0.23	-0.27	-0.25	-0.14	0.11
r-OTTER	A	none	0.02	-0.56	-0.12	-0.08	-0.14	-0.19	-0.08
r-OTTER	A	T90	0.00	0.00	0.00	0.00	0.00	1.00	0.83
r-OTTER	B	BACOMA	-0.21	0.10	-0.39	-0.09	-0.27	0.14	0.07
r-OTTER	B	none	0.03	0.08	-0.53	0.05	-0.09	0.45	0.25
r-OTTER	B	T90	0.00	0.00	0.00	0.00	1.00	13.51	0.70
r-OTTER	C	BACOMA	0.00	0.00	0.00	1.00	-1.00	0.00	0.00
r-OTTER	C	none	1.00	0.35	-0.48	0.50	-1.00	0.00	0.00
All regulated gears 28.2			0.15	-0.20	-0.04	-0.55	-0.30	-0.20	0.94
All regulated gears A			0.24	-0.16	-0.01	-0.13	-0.19	-0.15	-0.03
All regulated gears B			-0.25	0.00	-0.34	-0.10	-0.22	0.08	0.05
All regulated gears C			0.08	0.04	-0.24	-0.07	-0.13	0.17	-0.21

Table 5.1.1.4 Trend in nominal effort (kW*days at sea) by regulated gear categories according to Council Regulation (EC) 1098/2007, sub-area and Member State for 2004-2011. Data from Estonia were only available from 2005.

ANNEX	REG AREA COD	REG GEAR COD	COUNTRY	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bal	28.2	r-DEM_SEINE	LVA	1534	804					4091	3967	
Bal	28.2	r-GILL	EST				166					
Bal	28.2	r-GILL	LVA	128458	38171	62083	52721	52229	16129	15303	23211	17613
Bal	28.2	r-OTTER	EST				221	221				
Bal	28.2	r-OTTER	LVA	44642	88489	84119	63902	60089	34048	19735	4865	36969
Bal	28.2	r-PEL_TRAWL	LVA	882		6850	5500	1100		2860		
Bal	A	r-BEAM	DEU	442					3867			
Bal	A	r-BEAM	DNK								129	
Bal	A	r-DEM_SEINE	DEU		7398	1912	23422	37741	38400	42327	9713	13789
Bal	A	r-DEM_SEINE	DNK	367803	394203	266393	252561	238431	181854	118870	92271	54972
Bal	A	r-GILL	DEU	786357	662527	1135980	1449940	1457215	1247682	932027	893907	809150
Bal	A	r-GILL	DNK	571865	548685	1292689	996895	805567	873961	816545	673772	594059
Bal	A	r-GILL	EST			40887	57436	19041	39051	41349		
Bal	A	r-GILL	LTU			19111	32901					
Bal	A	r-GILL	LVA	79148	142491	171002	161456	30116	12676	3528	11604	6174
Bal	A	r-GILL	POL		236261	331555	199045	325354	228173	135263	84558	80203
Bal	A	r-GILL	SWE	730577	620542	661911	569385	546464	625243	517212	442913	439498
Bal	A	r-LONGLINE	DEU	78859	80543	122727	119348	100892	97335	122409	74286	62880
Bal	A	r-LONGLINE	DNK	104894	91833	190411	205287	128411	32694	36906	44680	47835
Bal	A	r-LONGLINE	LTU			12533	0					
Bal	A	r-LONGLINE	POL		17962	143615	46306	53736	21615	6391	4502	6288
Bal	A	r-LONGLINE	SWE	7730	46041	112396	40756	19061	14536	43369	39643	60377
Bal	A	r-OTTER	DEU	1906314	1753928	1686831	1481387	1491775	1207722	1028646	933844	964057
Bal	A	r-OTTER	DNK	3376295	2927587	3073583	2063167	1822436	1680846	1460281	1177622	1080463
Bal	A	r-OTTER	EST			4199					4248	
Bal	A	r-OTTER	LTU			57602	84342					
Bal	A	r-OTTER	LVA	880		17632		18488			7920	
Bal	A	r-OTTER	POL		172618	310416	185144	618979	315079	172795	114560	96578
Bal	A	r-OTTER	SWE	278503	220717	215686	338505	425893	345335	190277	155830	306992
Bal	A	r-PEL_TRAWL	DEU	14111	3975	17039	20699	30856	3443		3740	5756
Bal	A	r-PEL_TRAWL	DNK	22012	13656	18809	26622	6246	2831	2744	8255	561
Bal	A	r-PEL_TRAWL	EST			662		1269				
Bal	A	r-PEL_TRAWL	LTU			16799	0					
Bal	A	r-PEL_TRAWL	POL		2220	16612	1258	2612			160	
Bal	A	r-PEL_TRAWL	SWE		2882	2424	4198		720			1930
Bal	A	r-TRAMMEL	DEU	10392	21308	40549	67494	132416	128657	134669	77750	106349
Bal	A	r-TRAMMEL	DNK	203360	176945	368235	311504	309804	351748	358269	323131	271262
Bal	A	r-TRAMMEL	SWE	34418	29157	58699	45260	45160	50335	95011	62057	38708
Bal	B	r-DEM_SEINE	DEU		822		11756	9000	7782	19715	26908	38601
Bal	B	r-DEM_SEINE	DNK	729	880	8630	9781	4380				7936
Bal	B	r-DEM_SEINE	POL									33
Bal	B	r-GILL	DEU	11696	8290	43704	14527	11824	5048	6594		
Bal	B	r-GILL	DNK	255291	239932	243786	254043	189372	195012	172298	136131	128849
Bal	B	r-GILL	EST			287824	253368	128268	40036	31107		
Bal	B	r-GILL	LTU			93187	55397	90686	128949	107267	104170	78123
Bal	B	r-GILL	LVA	1397564	1471236	701180	596996	568781	539579	401856	361015	350477
Bal	B	r-GILL	POL		4339027	2361250	1992875	1556930	1079645	791231	788566	682079
Bal	B	r-GILL	SWE	1820884	1485621	1183969	1031157	833204	914404	811692	595833	519421
Bal	B	r-LONGLINE	DEU	10248	11771	15007	9881	11920	17580	12580	6600	2420
Bal	B	r-LONGLINE	DNK	212604	107249	127573	154932	85371	45181	63747	77366	75291
Bal	B	r-LONGLINE	LTU			264	59543	35332	34991	6664	3956	5514
Bal	B	r-LONGLINE	POL		712715	691955	738832	410561	270046	412292	391897	324214
Bal	B	r-LONGLINE	SWE	316942	373136	345327	321205	162491	198545	200874	176489	208160
Bal	B	r-OTTER	DEU	334236	211999	280977	163096	80177	191198	220844	276398	108001
Bal	B	r-OTTER	DNK	1095043	774695	791940	1255868	568490	640633	610697	776245	1067163
Bal	B	r-OTTER	EST			94896	5729	9503			96642	179832
Bal	B	r-OTTER	LTU			342503	192759	170844	382050	286887	332848	398109
Bal	B	r-OTTER	LVA	458330	322019	242532	350925	186093	229860	198632	218426	473943
Bal	B	r-OTTER	POL		5657875	3902889	4457610	2534977	1715576	1018609	1245924	1021206
Bal	B	r-OTTER	SWE	2070339	1942010	1716974	1655822	1151533	1205260	1001145	1169421	1420549
Bal	B	r-PEL_TRAWL	DEU		182107	143688	141492	70379	16691	36135	61303	128870
Bal	B	r-PEL_TRAWL	DNK	63296	49327	40022	95679	31103	1010	4030	3536	5080
Bal	B	r-PEL_TRAWL	EST			214426	355398	702922	703021	219177	114680	714754
Bal	B	r-PEL_TRAWL	LTU			1100	89918	85447	61407	20974	1764	4420
Bal	B	r-PEL_TRAWL	LVA	5065	114489	4122	29965	122803	10521	14473		
Bal	B	r-PEL_TRAWL	POL		921668	193724	628134	440888	21895	36317	3424	24022
Bal	B	r-PEL_TRAWL	SWE		144639	121133	413844	178434	36859	40493	16200	99798
Bal	B	r-TRAMMEL	DNK	3108	2064	5598	7550	12631	5910	15546	3693	1185
Bal	B	r-TRAMMEL	SWE	9096	8169	1237	914	2232	4946	1544	66	916
Bal	C	r-GILL	EST			166	166					
Bal	C	r-GILL	SWE	88826	90521	93264	95839	74613	65732	62898	73526	58367
Bal	C	r-LONGLINE	SWE	992					80		0	
Bal	C	r-OTTER	EST			3628	5454	2828	4242			
Bal	C	r-OTTER	SWE			404			2160			
Bal	C	r-TRAMMEL	SWE				265					

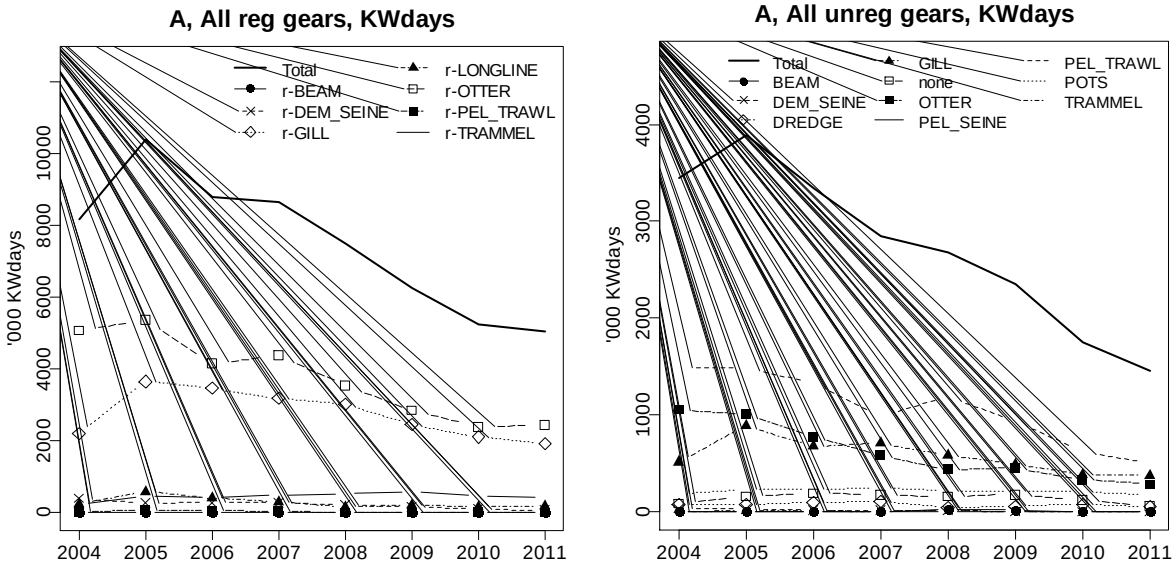

Figure 5.1.1.1. Area A Baltic: Trend in nominal effort by gear types 2004-2011 (Kw *days at sea). Left panel: Regulated gears. Right panel: Unregulated gears. Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards. Therefore, effort trends are shown from 2004 to 2011. No data from Finland.

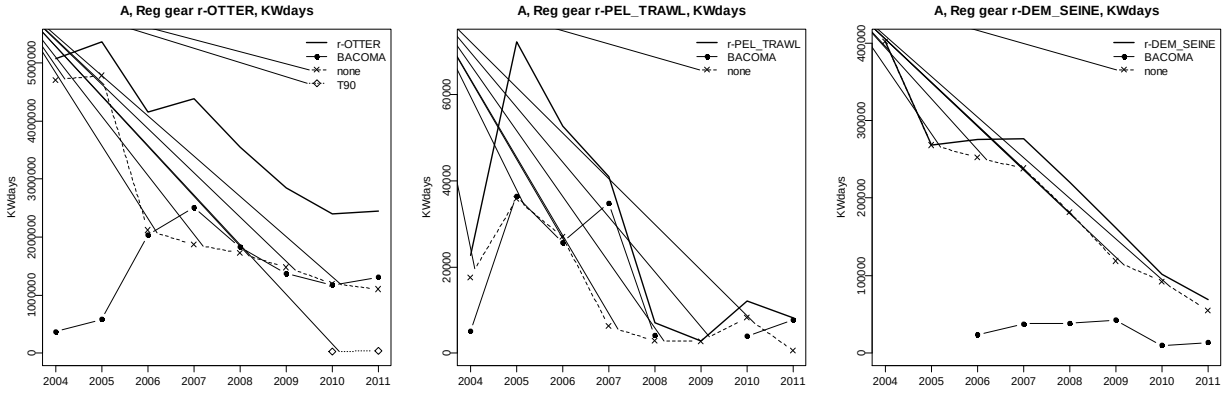

Figure 5.1.1.2. Area A Baltic: Trend in nominal by special conditions, 2004-2011 (kW *days at sea). Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards Therefore, effort trends are shown from 2004 to 2011. No data from Finland.

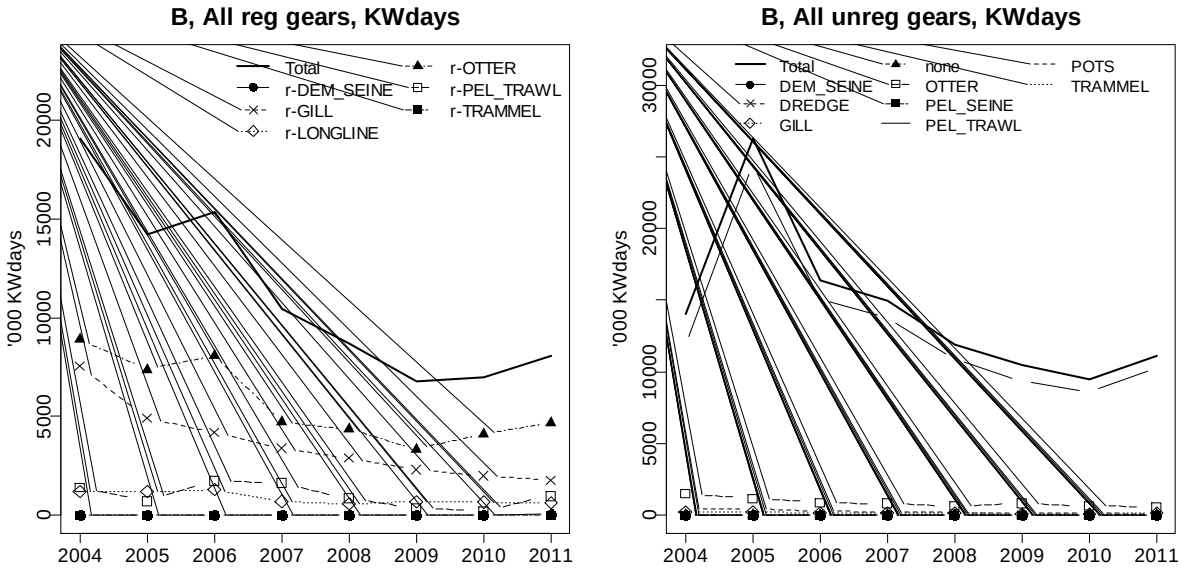

Figure 5.1.1.3. Area B Baltic: Trend in nominal effort by gear types 2004-2011 (kW *days at sea). Left: Regulated gears. Right: Unregulated gears. Note that data from Poland, Latvia and Lithuania are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2011. Additionally, Estonian data set of 2005-2011 was included in database. No data from Finland.

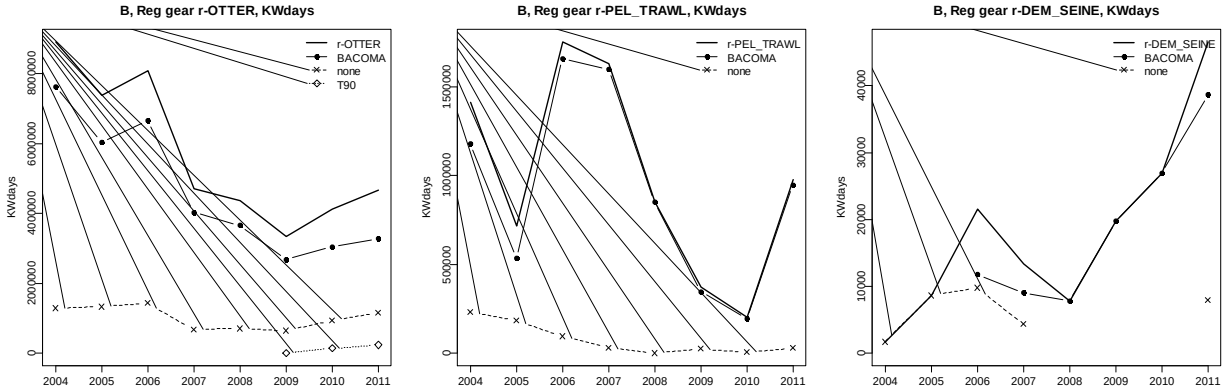

Figure 5.1.1.4. Area B Baltic: Trend in nominal effort by special conditions, 2004-2011 kW *days at sea). Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards. Therefore, effort trends are shown from 2004 to 2011. No data from Finland

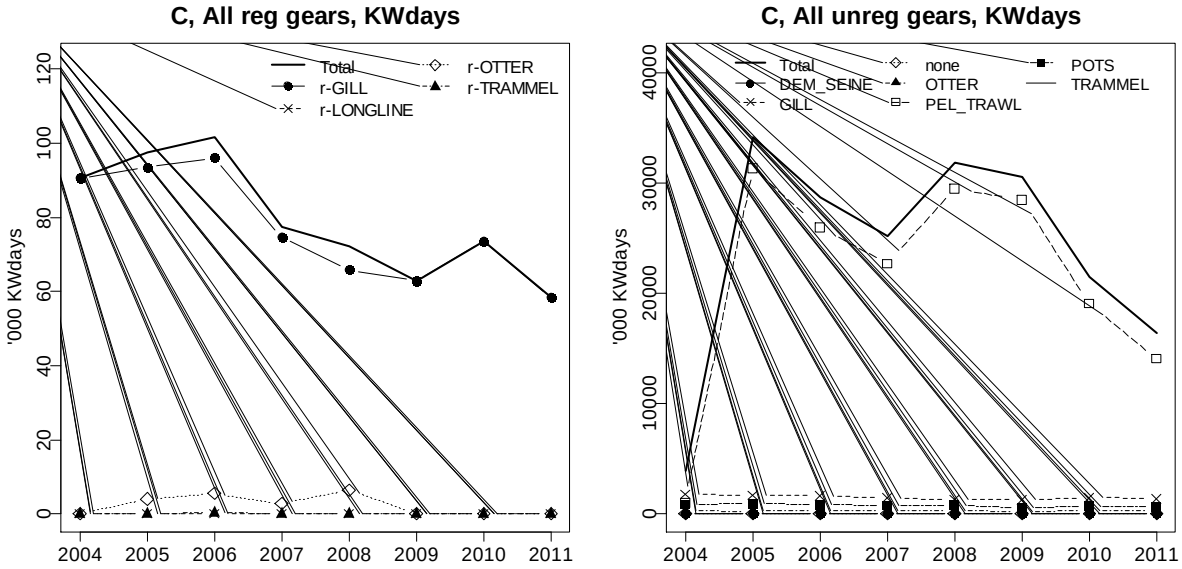

Figure 5.1.1.5. Area C Baltic: Trend in nominal effort by gear types 2004-2011 (kW *days at sea). Left: Regulated gears. Right: Unregulated gears. Note that data from Poland, Latvia and Lithuania are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2011. Additionally, Estonian data from 2005-2011 (including substantial pelagic effort) was included. No data from Finland.

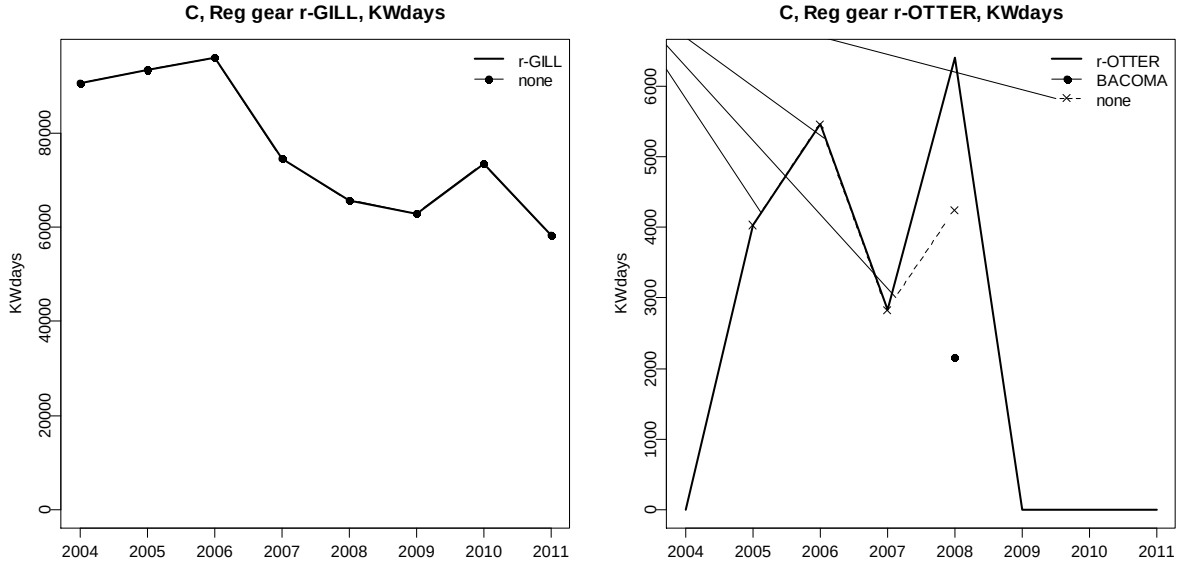

Figure 5.1.1.6. Area C Baltic: Trend in nominal effort by special conditions, 2004-2011 (kw *days at sea). Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards Therefore, effort trends are shown from 2004 to 2011. No data from Finland

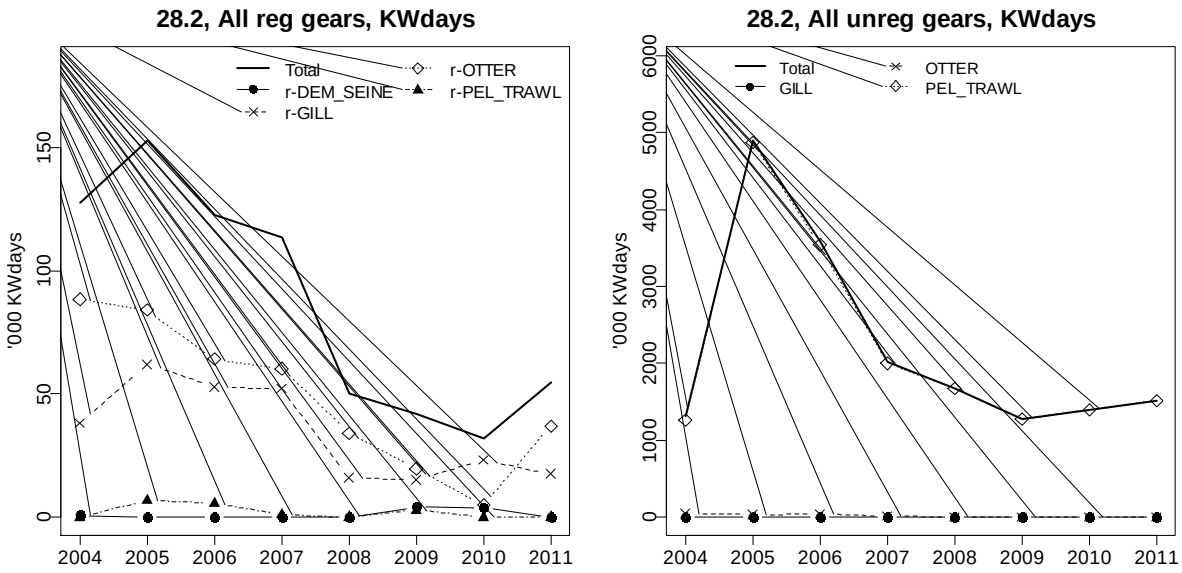

Figure 5.1.1.7. Area 28.2. Baltic: Trend in nominal effort by gear types 2004-2011(kW *days at sea). Left: Regulated gears. Right: Unregulated gears. Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards. Therefore, effort trends are shown from 2004 to 2011. No data from Finland

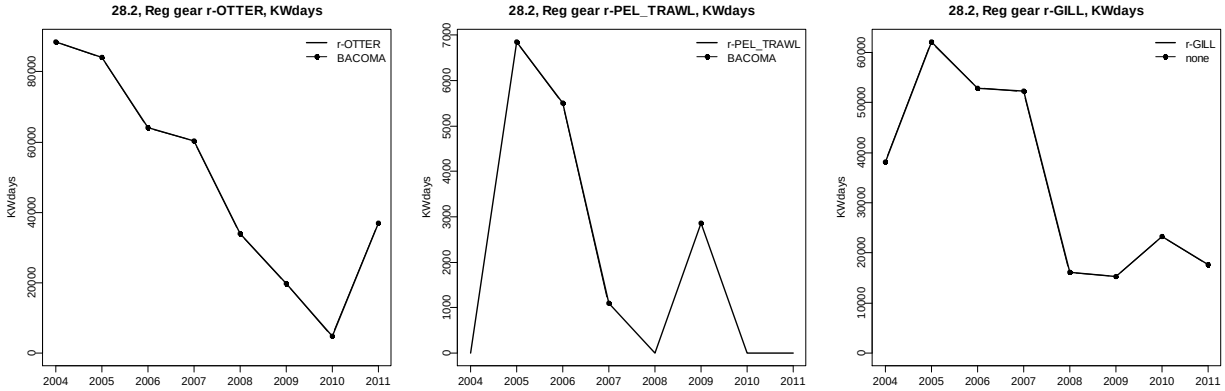

Figure 5.1.1.8. Area 28.2. Baltic: Trend in nominal effort by special conditions, 2004-2011 kW *days at sea). Note that data from Poland, Latvia and Lithuania are only available from 2004 and from Estonian from 2005 onwards. Therefore, effort trends are shown from 2004 to 2011. No data from Finland.

5.1.2 ToR 1.b Fishing activity by area, fisheries and Member State

Table 5.1.2.1 lists the estimated days at sea by area, regulated gear and Member State. The results show a clear decreasing trend over the areas A and B from total of 126 000 days at sea in 2004 to 76 000 days in 2011. The total decrease in fishing activity has been mostly driven by the respective trend in area B only (from 78 000 to 39 000 days. At the same time the fishing activity in area A has been fluctuating between 28 000 and 56 000 days without clear trend. The figures given in the table should be, however, taken cautiously, since the multi-fold counting may have been taken place in the cases where certain vessels may have deployed more than one specific regulated gear.

In order to avoid such a potential overestimation of days at sea, STECF EWG 12-12 recommends that the next Effort Data Call the Table D in 2013 shall be amended. A specific fishing effort parameter in units called fishing activity in units of days at sea shall be added. The additional parameter shall be specific by country, year, vessel-length, area (A or B) and gear (regulated=REGGEAR or un-regulated NONGEAR). STECF EWG would then be in position to fully address the ToR to estimate the uptake of maximum allowed fishing effort.

Table 5.1.2.1 Days at sea by area, regulated gear and Member State.

Days at sea

REG AREA COD	REG GEAR COD	COUNTRY	2004	2005	2006	2007	2008	2009	2010	2011
A	r-GILL	DEU	7219	14201	22002	21213	17262	13418	11971	11310
		DNK					12001	10655	9228	7920
		EST		115	124	68	125	151		
		LTU								
		LVA	811	1044	997	145	47	12	48	21
		POL	3908	4173	2656	4062	2912	1914	1129	1110
		SWE	5329	5743	5015	4958	5547	4643	4057	3944
	r-OTTER	DEU	9467	8771	8125	7952	6727	5677	5239	5317
		DNK					9316	8507	7180	6110
		EST		7					6	
		LTU								
		LVA		76		84			36	
		POL	748	1361	589	2374	1323	940	717	733
		SWE	705	589	807	960	728	415	331	691
B	r-GILL	DEU	50	361	82	58	24	50		
		DNK					2362	2078	1645	1674
		EST		462	458	308	140	101		
		LTU						944	821	635
		LVA	9376	4413	3501	3306	3024	2447	2213	2140
		POL	40916	25446	21835	17523	13910	11214	10733	10158
		SWE	15348	12125	10484	9220	10766	9395	6868	6188
	r-OTTER	DEU	644	996	625	282	775	1078	1365	485
		DNK					2625	2694	3120	4133
		EST		100	26	43			171	281
		LTU						1300	1508	1812
		LVA	1421	1054	1546	797	1012	806	892	2005
		POL	24902	15831	17179	10038	7031	4601	5562	5583
		SWE	5079	4262	4041	2640	2847	2539	2810	3427
Grand Total			125923	101130	100092	86031	100504	85579	77650	75677

5.1.3 ToR 1.b Catches (landings and discards) of cod in weight and numbers at age by fisheries

The following tables list the landings and discards for cod by gear category, sub-area and Member State (Table 5.1.3.1) as well as aggregated over Member States (Table 5.1.3.2). Discard rates per year, gear category, sub-area and country can be found in Table 5.1.3.3 and aggregated over Member States in Table 5.1.3.2. In addition in Table 5.1.3.4 discard rates by sub-areas, gear category and years are presented, while in Table 5.1.3.5 discard and landing data by age is listed. Figures on landings and discards for the most important gear categories catching cod were also provided (Figure 5.1.3.1).

The overall problem highlighted in this section is the poor quality of discard data as already outlined. In addition, data from Poland are only available from 2004 and for Estonia, from 2005 onwards. Therefore, for the analyses of catch and discard trends, year 2003 had to be excluded.

The overall landings of Baltic cod in 2011 were 7% lower compared to 2004 (ICES, 2011) and 5% higher than in 2010. Discards fluctuate around low values without trend over years. Despite the quality of discard estimates has essentially improved since the introduction of EU Data Collection Programs the estimates should still be taken with caution.

Most cod landings stem from areas A and B. Area C only plays a very limited role according to available data, on cod present distribution pattern in the Baltic (Landings 2011 A+B = 50368 tonnes; Landings 2010 C = 69 tonnes (<1.4%)).

Discard rates for cod are highest for area B followed by area A (Table 5.1.3.1). For area C only very minor discard rate has been observed in gillnet fishery. This probably reflects the distribution of the cod stock. Discard rates were higher for pelagic trawls (up to 22 % in sub-area A in 2011) but remained generally <16% from 2005 onwards in most cases. The discards from gillnet fishery generally remained below 10%. Discard rates between Member States are of comparable magnitude. Only in area B were discard rates for r-Otter significantly higher for Sweden, Germany and Poland compared to the other countries in some years. Unfortunately a comparison between BACOMA trawls and non-BACOMA trawls was not possible due to the inability to distinguish between vessels equipped with BACOMA trawls and vessels not equipped with BACOMA-trawls especially for the years before 2005.

Table 5.1.3.1 Landings (t) and discards (t) for cod in 2004-2011 by gear category, area and Member State. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007. Gear types without an "r" are non-regulated gears. Data from Estonia are only available from 2005 onwards

REG_AREA	REG_GEAR	SPECON	COUNTRY	2004 L	2004 D	2005 L	2005 D	2006 L	2006 D	2007 L	2007 D	2008 L	2008 D	2009 L	2009 D	2010 L	2010 D	2011 L	2011 D
28.2	GILL	none	LVA													0	0	0	0
28.2	OTTER	none	LVA			0	0	0	0										
28.2	PEL_TRAWL	NONE	EST															0	0
28.2	PEL_TRAWL	none	LVA	17	0	9	0	9	0	13	0	5	0			1	0	3	0
28.2	r-GILL	none	LVA	74	0	151	3	90	2	102	7	39	1	39	0	37	0	36	0
28.2	r-OTTER	BACOMA	EST							1	0								
28.2	r-OTTER	BACOMA	LVA	173	0	195	0	168	0	93	0	57	0	121	0	12	0	41	0
28.2	r-PEL_TRAWL	BACOMA	LVA																
A	BEAM	none	DEU													2	0	3	0
A	DEM_SEINE	none	DNK	0	0	0	0	6	0	0	0								
A	DEM_SEINE	none	POL	0	0					0	0								
A	DREDGE	none	DNK																
A	GILL	none	DEU	0	0	22	0	21	0	17	0	4	0	1	0	3	0	0	0
A	GILL	none	DNK	56	0	258	4	122	0	119	0	20	0	12	0	7	0	7	0
A	GILL	none	POL	9	0	1	0	1	0	5	0	3	0	1	0	0	0		
A	GILL	none	SWE	0	0	1	0	0	0	1	0	0	0	1	0	1	0	2	0
A	none	none	DEU	3	0	18	0	34	0	9	0	3	0	3	0				
A	none	none	DNK	2782	0	426	0	808	0	99	0	52	0	24	0	40	0	30	0
A	none	none	SWE	1	0	23	0	7	0	35	0	15	0	6	0	17	0		
A	OTTER	none	DEU	21	0	77	0	60	0	39	0	57	0	33	0	22	34	52	0
A	OTTER	none	DNK	72	0	121	0	122	0	49	0	22	0	23	0	8	14	9	0
A	OTTER	none	POL	3	0	3	0	1	0	1	0	0	0					7	0
A	OTTER	none	SWE	1	0	0	0	1	0	0	0			0	0				
A	PEL_TRAWL	none	DEU	26	0	65	0	83	0	50	0	47	0	17	0	17	0	6	1
A	PEL_TRAWL	none	DNK	35	0	94	0	88	0	46	0	27	0	19	0	19	0	10	0
A	PEL_TRAWL	none	LVA							11	0			0	0				
A	PEL_TRAWL	none	POL	10	0	35	0	40	0	9	0	16	0	0	0	1	0	1	0
A	PEL_TRAWL	none	SWE	60	1	71	0	53	0	31	0	27	0	23	0	28	0	25	9
A	POTS	none	DEU	2	0	0	0	2	0	0	0	1	0	4	0	14	0	4	0
A	POTS	none	DNK			268	0	83	0	174	0	64	0	58	0	83	0	47	0
A	POTS	none	POL	0	0			1	0										
A	POTS	none	SWE	3	0	3	0	4	0	6	0	1	0	0	0	2	0	4	0
A	r-BEAM	BACOMA	DEU									9	0						
A	r-BEAM	none	DEU																
A	r-DEM_SEINE	BACOMA	DEU					51	0	143	0	250	0	194	0	51	0	71	0
A	r-DEM_SEINE	none	DEU	6	0	37	4												
A	r-DEM_SEINE	none	DNK	1318	81	1045	67	1339	64	1425	136	1222	2	581	9	466	7	375	13
A	r-GILL	none	DEU	624	13	1140	45	1744	0	1699	0	1534	0	874	87	1174	35	864	28
A	r-GILL	none	DNK	1444	15	2998	125	2310	0	2098	0	1865	1	1398	74	1378	33	1462	0
A	r-GILL	none	EST			60	3	102	0	52	0	132	0	194	8				
A	r-GILL	none	LVA	247	2	406	19	580	0	90	0	30	0	23	1	71	3	24	1
A	r-GILL	none	POL	316	7	449	18	436	0	884	0	641	0	266	36	168	3	225	4
A	r-GILL	none	SWE	1217	18	1151	46	1063	0	1153	0	1245	2	946	39	817	17	870	15
A	r-LONGLINE	none	DEU	24	0	59	3	32	0	20	0	20	0	13	0	32	0	27	0
A	r-LONGLINE	none	DNK	309	1	718	36	478	0	413	0	131	0	123	1	158	0	221	0
A	r-LONGLINE	none	LTU			8	0												
A	r-LONGLINE	none	POL	33	0	258	12	128	0	265	0	78	0	10	0	13	0	20	0
A	r-LONGLINE	none	SWE	113	3	204	7	100	0	54	0	58	0	157	0	107	0	167	2
A	r-OTTER	BACOMA	DEU					4944	332	4941	319	3155	231	2623	300	2556	567	3133	411
A	r-OTTER	BACOMA	EST			1	0									0	0		
A	r-OTTER	BACOMA	LVA			57	0	1	0	173	13					87	11		
A	r-OTTER	BACOMA	POL	129	13	309	0	177	13	1182	78	611	37	238	20	127	11	224	48
A	r-OTTER	BACOMA	SWE	755	40	634	2	1217	61	1525	132	1256	51	879	91	429	45	1241	542
A	r-OTTER	none	DEU	3685	320	4670	504	22	0	9	0	18	0	4	0	1	0	17	0
A	r-OTTER	none	DNK	7748	7	7273	17	6441	5	6921	9	5502	11	5353	10	4422	11	5363	0
A	r-OTTER	none	LTU			129	0	42	0										
A	r-OTTER	NONE	POL															7	0
A	r-OTTER	none	SWE													19	2		
A	r-OTTER	T90	SWE													45	4	149	65
A	r-PEL_TRAWL	BACOMA	DEU					76	0	187	0	5	0			13	0	13	3
A	r-PEL_TRAWL	BACOMA	EST			1	0			10	0								
A	r-PEL_TRAWL	BACOMA	POL			27	0	2	0	3	0								
A	r-PEL_TRAWL	BACOMA	SWE	8	0	5	0	7	0			2	0					6	2
A	r-PEL_TRAWL	none	DEU	11	0	35	0	0	0										
A	r-PEL_TRAWL	none	DNK	23	0	59	0	98	0	19	0	7	0	23	0	35	0	0	0
A	r-PEL_TRAWL	none	LTU			10	0												

Table 5.1.3.1 continued

B	DEM_SEINE	none	DNK															1	
B	DREDGE	none	DNK											6	0				
B	GILL	none	DNK	47	0	35	0	54	0	42	0	7	0	1	0	0	0		
B	GILL	NONE	LVA															0	0
B	GILL	none	POL	6	0	2	0	2	0	1	0	1	0	2	0	1	0	13	0
B	GILL	none	SWE			0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	none	none	DNK	1057	0	41	0	82	0	9	0	3	0			2	0	24	0
B	none	none	SWE	5	0	3	0	11	0	8	0	7	0	4	0	0	0		
B	OTTER	none	DEU									0	0	6	0	0	0	0	0
B	OTTER	none	DNK	60	0	66	0	33	0	10	0	3	0	6	1	1	0	2	0
B	OTTER	NONE	LTU													0	0		
B	OTTER	none	LVA																
B	OTTER	none	POL	38	0	32	0	8	0	3	0	2	0			0	0	31	2
B	OTTER	NONE	SWE	24	0	22	0	15	0	16	0	16	0	22	2	10	0	3	0
B	PEL_TRAWL	none	DEU	5	0					0	0					0	0		
B	PEL_TRAWL	none	DNK	29	0	80	0	21	0	24	0	6	0	13	1	4	5	1	0
B	PEL_TRAWL	none	EST			47	0	0	0	40	0	19	0	17	1			7	0
B	PEL_TRAWL	NONE	LTU											52	0	30	43	27	0
B	PEL_TRAWL	none	LVA	57	0	69	0	56	0	207	0	149	0	177	14	159	107	254	21
B	PEL_TRAWL	none	POL	321	0	352	0	262	0	133	0	143	0	58	5	58	54	13	0
B	PEL_TRAWL	none	SWE	102	0	96	0	36	0	100	0	79	0	96	12	22	0	13	2
B	POTS	none	DNK			0	0			0	0								
B	POTS	none	POL	0	0	0	0	1	0									2	0
B	POTS	none	SWE	0	0	0	0	0	0	0	0	1	0	12	1	8	0	0	0
B	r-DEM_SEINE	BACOMA	DEU					67	0	58	0	94	0	339	0	233	0	365	0
B	r-DEM_SEINE	none	DEU	1	0														
B	r-DEM_SEINE	none	DNK	0	0	89	0	82	0	45	0							90	0
B	r-GILL	none	DEU	19	1	172	5	16	0	2	0	8	0	19	0				
B	r-GILL	none	DNK	595	13	605	15	719	25	729	51	871	32	789	28	465	43	404	0
B	r-GILL	none	EST			301	9	296	12	229	21	168	6	161	4				
B	r-GILL	NONE	LTU			3	0			1	0			451	16	484	139	305	0
B	r-GILL	none	LVA	3380	146	2106	70	1821	69	1657	195	1964	73	2333	72	2336	235	1710	80
B	r-GILL	none	POL	5217	158	3496	109	3582	139	2048	132	2788	70	3448	138	3323	255	2939	144
B	r-GILL	none	SWE	2894	40	1864	57	1629	55	1517	93	1969	75	1835	98	1081	32	802	40
B	r-LONGLINE	none	DEU	0	0	1	0	0	0			0	0			0	0		
B	r-LONGLINE	none	DNK	238	2	378	5	319	0	192	0	113	0	89	6	139	16	122	0
B	r-LONGLINE	NONE	LTU											28	0	22	0	17	0
B	r-LONGLINE	none	POL	2122	26	1804	25	2553	0	1371	0	913	3	514	36	1372	173	1104	30
B	r-LONGLINE	none	SWE	1197	16	951	19	896	0	537	0	724	1	621	48	412	62	356	21
B	r-OTTER	BACOMA	DEU					1199	220	596	110	1960	123	1991	260	2456	244	793	102
B	r-OTTER	BACOMA	EST			73	5	28	5	63	12					526	55	622	85
B	r-OTTER	BACOMA	LTU											2042	189	2595	232	2702	110
B	r-OTTER	BACOMA	LVA	623	26	931	23	1603	106	1043	39	1658	156	1776	130	2434	311	2856	320
B	r-OTTER	BACOMA	POL	5366	280	5291	358	6282	704	3399	506	4466	272	5478	489	6548	624	6039	814
B	r-OTTER	BACOMA	SWE	7131	426	4502	649	5357	1334	6108	1459	5792	665	6785	982	7030	656	7009	1128
B	r-OTTER	none	DEU	1039	36	1570	44					26	1	34	0				
B	r-OTTER	none	DNK	3427	65	2964	73	6443	374	4539	118	5842	129	6683	130	9487	223	9653	10
B	r-OTTER	none	LTU			23	0	112	9	669	11								
B	r-OTTER	NONE	POL															474	0
B	r-OTTER	none	SWE											156	21	274	27		
B	r-OTTER	T90	SWE											77	12	887	75	1145	190
B	r-PEL_TRAWL	BACOMA	DEU					728	124	870	94	260	12	842	78	1228	34	1896	296
B	r-PEL_TRAWL	BACOMA	EST			103	0	277	42	446	41	611	63	445	38	266	8	547	107
B	r-PEL_TRAWL	BACOMA	LTU															37	0
B	r-PEL_TRAWL	BACOMA	LVA	348	9	6	0	140	28	751	86	32	3	122	10				
B	r-PEL_TRAWL	BACOMA	POL	1188	20	235	0	1111	22	1378	21	34	2	261	8	28	1	150	27
B	r-PEL_TRAWL	BACOMA	SWE	494	26	321	0	1596	393	1226	227	162	32	394	46	114	9	553	172
B	r-PEL_TRAWL	none	DEU	1530	22	578	22												
B	r-PEL_TRAWL	none	DNK	394	3	174	6	543	0	356	0	14	0	91	0	55	0	49	0
B	r-PEL_TRAWL	none	LTU			122	4	791	0	1732	0			218	0	13	0		
B	r-PEL_TRAWL	NONE	POL															17	0
B	r-PEL_TRAWL	T90	SWE															24	7
B	r-TRAMMEL	none	DNK	7	0	2	0	4	0	36	0	26	0	68	0	10	0	1	0
B	r-TRAMMEL	none	SWE	2	0	1	0	0	0	0	0	1	0	0	0			0	0
B	TRAMMEL	none	DNK					0	0	1	0								
B	TRAMMEL	none	SWE	1	0	0	0	0	0			0	0						
C	GILL	none	FIN	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
C	GILL	none	SWE			1	0	0	0							0	0		
C	OTTER	none	SWE	0	0	0	0	4	0										
C	PEL_TRAWL	none	DNK																
C	POTS	none	FIN	0	0	0	0							0	0			0	0
C	r-GILL	none	SWE	12	0	10	0	10	0	13	0	15	0	34	2	41	1	60	3
C	r-LONGLINE	none	SWE									0	0						
C	r-OTTER	BACOMA	SWE									1	0						
GRAND TOTAL A+B+C				60340	1839	53314	2429	62310	4136	56760	3903	49688	2053	53108	3576	57067	4462	58447	4856
GRAND TOTAL 28.2				264	0	355	3	267	2	209	7	101	1	160	0	50	0	80	0

Table 5.1.3.2 Landings (t) and discards (t) for cod in 2004-2011 by gear category and area. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007. Gear types without an "r" are non-regulated gears. Data from Estonia are only available from 2005 onwards

REG_AREA	REG_GEAR	SPECON	2004 L	2004 D	2005 L	2005 D	2006 L	2006 D	2007 L	2007 D	2008 L	2008 D	2009 L	2009 D	2010 L	2010 D	2011 L	2011 D
28.2	GILL	none													0	0	0	0
	OTTER	none			0	0	1	0										
	PEL_TRAWL	none	17	0	9	0	1	0	13	0	5	0			1	0	3	0
	r-GILL	none	74	0	151	3	1	2	102	7	39	1	1	0	37	0	36	0
	r-OTTER	BACOMA	173	0	195	0	1	0	94	0	57	0	1	0	12	0	41	0
	r-PEL_TRAWL	BACOMA																
A	BEAM	none													2	0	3	0
	DEM_SEINE	none	0	0	0	0	1	0	0	0								
	DREDGE	none																
	GILL	none	65	0	282	4	4	0	142	0	27	0	4	0	11	0	9	0
	none	none	2786	0	467	0	3	0	143	0	70	0	3	0	57	0	30	0
	OTTER	none	97	0	201	0	4	0	89	0	79	0	3	0	30	48	68	0
	PEL_TRAWL	none	131	1	265	0	4	0	147	0	117	0	5	0	65	0	42	10
	POTS	none	5	0	271	0	4	0	180	0	66	0	3	0	99	0	55	0
	r-BEAM	BACOMA									9	0						
		none																
	r-DEM_SEINE	BACOMA					1	0	143	0	250	0	1	0	51	0	71	0
		none	1324	81	1082	71	1	64	1425	136	1222	2	1	9	466	7	375	13
	r-GILL	none	3848	55	6204	256	6	0	5976	0	5447	3	6	245	3608	91	3445	48
	r-LONGLINE	none	479	4	1247	58	4	0	752	0	287	0	4	1	310	0	435	2
	r-OTTER	BACOMA	884	53	1001	2	4	406	7821	542	5022	319	3	411	3199	634	4598	1001
		none	11433	327	12072	521	3	5	6930	9	5520	11	2	10	4442	13	5387	0
		T90													45	4	149	65
	r-PEL_TRAWL	BACOMA	8	0	33	0	3	0	200	0	7	0			13	0	19	5
		none	34	0	104	0	2	0	19	0	7	0	1	0	35	0	0	0
	r-TRAMMEL	none	266	3	542	19	3	0	580	0	597	0	3	22	477	1	528	1
	TRAMMEL	none	4	0	21	0	2	0	8	0	7	0	2	0	1	0	0	0
B	DEM_SEINE	none															1	0
	DREDGE	none									6	0						
	GILL	none	53	0	37	0	3	0	43	0	8	0	3	0	1	0	13	0
	none	none	1062	0	44	0	2	0	17	0	10	0	1	0	2	0	24	0
	OTTER	none	122	0	120	0	3	0	29	0	21	0	3	3	11	0	36	2
	PEL_TRAWL	none	514	0	644	0	5	0	504	0	396	0	6	33	273	209	315	23
	POTS	none	0	0	0	0	2	0	0	0	1	0	1	1	8	0	2	0
	r-DEM_SEINE	BACOMA					1	0	58	0	94	0	1	0	233	0	365	0
		none	1	0	89	0	1	0	45	0							90	0
	r-GILL	none	12105	358	8547	265	6	300	6183	492	7768	256	7	356	7689	704	6160	264
	r-LONGLINE	none	3557	44	3134	49	4	0	2100	0	1750	4	4	90	1945	251	1599	51
	r-OTTER	BACOMA	13120	732	10797	1035	5	2369	11209	2126	13876	1216	5	2050	21589	2122	20021	2559
		none	4466	101	4557	117	2	383	5208	129	5868	130	3	151	9761	250	10127	10
		T90											1	12	887	75	1145	190
	r-PEL_TRAWL	BACOMA	2030	55	665	0	5	609	4671	469	1099	112	5	180	1636	52	3183	602
		none	1924	25	874	32	2	0	2088	0	14	0	2	0	68	0	66	0
		T90															24	7
	r-TRAMMEL	none	9	0	3	0	2	0	36	0	27	0	2	0	10	0	1	0
	TRAMMEL	none	1	0	0	0	2	0	1	0	0	0						
C	GILL	none	0	0	1	0	2	0	0	0	0	0	1	0	2	0	1	0
	OTTER	none	0	0	0	0	1	0										
	PEL_TRAWL	none																
	POTS	none	0	0	0	0							1	0			0	0
	r-GILL	none	12	0	10	0	1	0	13	0	15	0	1	2	41	1	60	3
	r-LONGLINE	none									0	0						
	r-OTTER	BACOMA									1	0						

Table 5.1.3.3 Discard rates for cod 2004-2011 by gear category, area and country. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007). Gear types without an "r" are non-regulated gears. Data from Estonia are only available from 2005 onwards

REG_AREA	REG_GEAR	SPECON	COUNTRY	2004	2005	2006	2007	2008	2009	2010	2011
28.2	GILL	none	LVA	0	0	0	0	0	0	0	0
28.2	OTTER	none	LVA	0	0	0	0	0	0	0	0
28.2	PEL_TRAWL	NONE	EST	0	0	0	0	0	0	0	0
28.2	PEL_TRAWL	none	LVA	0	0	0	0	0	0	0	0
28.2	r-GILL	none	LVA	0	0.02	0.02	0.06	0.02	0	0	0
28.2	r-OTTER	BACOMA	EST	0	0	0	0	0	0	0	0
28.2	r-OTTER	BACOMA	LVA	0	0	0	0	0	0	0	0
28.2	r-PEL_TRAWL	BACOMA	LVA	0	0	0	0	0	0	0	0
A	BEAM	none	DEU	0	0	0	0	0	0	0	0
A	DEM_SEINE	none	DNK	0	0	0	0	0	0	0	0
A	DEM_SEINE	none	POL	0	0	0	0	0	0	0	0
A	DREDGE	none	DNK	0	0	0	0	0	0	0	0
A	GILL	none	DEU	0	0	0	0	0	0	0	0
A	GILL	none	DNK	0	0.02	0	0	0	0	0	0
A	GILL	none	POL	0	0	0	0	0	0	0	0
A	GILL	none	SWE	0	0	0	0	0	0	0	0
A	none	none	DEU	0	0	0	0	0	0	0	0
A	none	none	DNK	0	0	0	0	0	0	0	0
A	none	none	SWE	0	0	0	0	0	0	0	0
A	OTTER	none	DEU	0	0	0	0	0	0	0.61	0
A	OTTER	none	DNK	0	0	0	0	0	0	0.64	0
A	OTTER	none	POL	0	0	0	0	0	0	0	0
A	OTTER	none	SWE	0	0	0	0	0	0	0	0
A	PEL_TRAWL	none	DEU	0	0	0	0	0	0	0	0.14
A	PEL_TRAWL	none	DNK	0	0	0	0	0	0	0	0
A	PEL_TRAWL	none	LVA	0	0	0	0	0	0	0	0
A	PEL_TRAWL	none	POL	0	0	0	0	0	0	0	0
A	PEL_TRAWL	none	SWE	0.02	0	0	0	0	0	0	0.26
A	POTS	none	DEU	0	0	0	0	0	0	0	0
A	POTS	none	DNK	0	0	0	0	0	0	0	0
A	POTS	none	POL	0	0	0	0	0	0	0	0
A	POTS	none	SWE	0	0	0	0	0	0	0	0
A	r-BEAM	BACOMA	DEU	0	0	0	0	0	0	0	0
A	r-BEAM	none	DEU	0	0	0	0	0	0	0	0
A	r-DEM_SEINE	BACOMA	DEU	0	0	0	0	0	0	0	0
A	r-DEM_SEINE	none	DEU	0	0.1	0	0	0	0	0	0
A	r-DEM_SEINE	none	DNK	0.06	0.06	0.05	0.09	0	0.02	0.01	0.04
A	r-GILL	none	DEU	0.02	0.04	0	0	0	0.09	0.03	0.03
A	r-GILL	none	DNK	0.01	0.04	0	0	0	0.05	0.02	0
A	r-GILL	none	EST	0	0.05	0	0	0	0.04	0	0
A	r-GILL	none	LVA	0.01	0.04	0	0	0	0.04	0.04	0.04
A	r-GILL	none	POL	0.02	0.04	0	0	0	0.12	0.02	0.02
A	r-GILL	none	SWE	0.01	0.04	0	0	0	0.04	0.02	0.02
A	r-LONGLINE	none	DEU	0	0.05	0	0	0	0	0	0
A	r-LONGLINE	none	DNK	0	0.05	0	0	0	0.01	0	0
A	r-LONGLINE	none	LTU	0	0	0	0	0	0	0	0
A	r-LONGLINE	none	POL	0	0.04	0	0	0	0	0	0
A	r-LONGLINE	none	SWE	0.03	0.03	0	0	0	0	0	0.01
A	r-OTTER	BACOMA	DEU	0	0	0.06	0.06	0.07	0.1	0.18	0.12
A	r-OTTER	BACOMA	EST	0	0	0	0	0	0	0	0
A	r-OTTER	BACOMA	LVA	0	0	0	0.07	0	0	0.11	0
A	r-OTTER	BACOMA	POL	0.09	0	0.07	0.06	0.06	0.08	0.08	0.18
A	r-OTTER	BACOMA	SWE	0.05	0	0.05	0.08	0.04	0.09	0.09	0.3
A	r-OTTER	none	DEU	0.08	0.1	0	0	0	0	0	0
A	r-OTTER	none	DNK	0	0	0	0	0	0	0	0
A	r-OTTER	none	LTU	0	0	0	0	0	0	0	0
A	r-OTTER	NONE	POL	0	0	0	0	0	0	0	0
A	r-OTTER	none	SWE	0	0	0	0	0	0	0.1	0
A	r-OTTER	T90	SWE	0	0	0	0	0	0	0.08	0.3
A	r-PEL_TRAWL	BACOMA	DEU	0	0	0	0	0	0	0	0.19
A	r-PEL_TRAWL	BACOMA	EST	0	0	0	0	0	0	0	0
A	r-PEL_TRAWL	BACOMA	POL	0	0	0	0	0	0	0	0
A	r-PEL_TRAWL	BACOMA	SWE	0	0	0	0	0	0	0	0.25
A	r-PEL_TRAWL	none	DEU	0	0	0	0	0	0	0	0
A	r-PEL_TRAWL	none	DNK	0	0	0	0	0	0	0	0
A	r-PEL_TRAWL	none	LTU	0	0	0	0	0	0	0	0

Table 5.1.3.3 continued.

B	DREDGE	none	DNK	0	0	0	0	0	0	0	0
B	GILL	none	DNK	0	0	0	0	0	0	0	0
B	GILL	NONE	LVA	0	0	0	0	0	0	0	0
B	GILL	none	POL	0	0	0	0	0	0	0	0
B	GILL	none	SWE	0	0	0	0	0	0	0	0
B	none	none	DNK	0	0	0	0	0	0	0	0
B	none	none	SWE	0	0	0	0	0	0	0	0
B	OTTER	none	DEU	0	0	0	0	0	0	0	0
B	OTTER	none	DNK	0	0	0	0	0	0.14	0	0
B	OTTER	NONE	LTU	0	0	0	0	0	0	0	0
B	OTTER	none	LVA	0	0	0	0	0	0	0	0
B	OTTER	none	POL	0	0	0	0	0	0	0	0.06
B	OTTER	NONE	SWE	0	0	0	0	0	0.08	0	0
B	PEL_TRAV	none	DEU	0	0	0	0	0	0	0	0
B	PEL_TRAV	none	DNK	0	0	0	0	0	0.07	0.5	0
B	PEL_TRAV	none	EST	0	0	0	0	0	0.06	0	0
B	PEL_TRAV	NONE	LTU	0	0	0	0	0	0	0.59	0
B	PEL_TRAV	none	LVA	0	0	0	0	0	0.07	0.4	0.08
B	PEL_TRAV	none	POL	0	0	0	0	0	0.08	0.48	0
B	PEL_TRAV	none	SWE	0	0	0	0	0	0.11	0	0.13
B	POTS	none	DNK	0	0	0	0	0	0	0	0
B	POTS	none	POL	0	0	0	0	0	0	0	0
B	POTS	none	SWE	0	0	0	0	0	0.08	0	0
B	r-DEM_SE	BACOMA	DEU	0	0	0	0	0	0	0	0
B	r-DEM_SE	none	DEU	0	0	0	0	0	0	0	0
B	r-DEM_SE	none	DNK	0	0	0	0	0	0	0	0
B	r-GILL	none	DEU	0.05	0.03	0	0	0	0	0	0
B	r-GILL	none	DNK	0.02	0.02	0.03	0.07	0.04	0.03	0.08	0
B	r-GILL	none	EST	0	0.03	0.04	0.08	0.03	0.02	0	0
B	r-GILL	NONE	LTU	0	0	0	0	0	0.03	0.22	0
B	r-GILL	none	LVA	0.04	0.03	0.04	0.11	0.04	0.03	0.09	0.04
B	r-GILL	none	POL	0.03	0.03	0.04	0.06	0.02	0.04	0.07	0.05
B	r-GILL	none	SWE	0.01	0.03	0.03	0.06	0.04	0.05	0.03	0.05
B	r-LONGLIN	none	DEU	0	0	0	0	0	0	0	0
B	r-LONGLIN	none	DNK	0.01	0.01	0	0	0	0.06	0.1	0
B	r-LONGLIN	NONE	LTU	0	0	0	0	0	0	0	0
B	r-LONGLIN	none	POL	0.01	0.01	0	0	0	0.07	0.11	0.03
B	r-LONGLIN	none	SWE	0.01	0.02	0	0	0	0.07	0.13	0.06
B	r-OTTER	BACOMA	DEU	0	0	0.16	0.16	0.06	0.12	0.09	0.11
B	r-OTTER	BACOMA	EST	0	0.06	0.15	0.16	0	0	0.09	0.12
B	r-OTTER	BACOMA	LTU	0	0	0	0	0	0.08	0.08	0.04
B	r-OTTER	BACOMA	LVA	0.04	0.02	0.06	0.04	0.09	0.07	0.11	0.1
B	r-OTTER	BACOMA	POL	0.05	0.06	0.1	0.13	0.06	0.08	0.09	0.12
B	r-OTTER	BACOMA	SWE	0.06	0.13	0.2	0.19	0.1	0.13	0.09	0.14
B	r-OTTER	none	DEU	0.03	0.03	0	0	0.04	0	0	0
B	r-OTTER	none	DNK	0.02	0.02	0.05	0.03	0.02	0.02	0.02	0
B	r-OTTER	none	LTU	0	0	0.07	0.02	0	0	0	0
B	r-OTTER	NONE	POL	0	0	0	0	0	0	0	0
B	r-OTTER	none	SWE	0	0	0	0	0	0.12	0.09	0
B	r-OTTER	T90	SWE	0	0	0	0	0	0.13	0.08	0.14
B	r-PEL_TRA	BACOMA	DEU	0	0	0.15	0.1	0.04	0.08	0.03	0.14
B	r-PEL_TRA	BACOMA	EST	0	0	0.13	0.08	0.09	0.08	0.03	0.16
B	r-PEL_TRA	BACOMA	LTU	0	0	0	0	0	0	0	0
B	r-PEL_TRA	BACOMA	LVA	0.03	0	0.17	0.1	0.09	0.08	0	0
B	r-PEL_TRA	BACOMA	POL	0.02	0	0.02	0.02	0.06	0.03	0.03	0.15
B	r-PEL_TRA	BACOMA	SWE	0.05	0	0.2	0.16	0.16	0.1	0.07	0.24
B	r-PEL_TRA	none	DEU	0.01	0.04	0	0	0	0	0	0
B	r-PEL_TRA	none	DNK	0.01	0.03	0	0	0	0	0	0
B	r-PEL_TRA	none	LTU	0	0.03	0	0	0	0	0	0
B	r-PEL_TRA	NONE	POL	0	0	0	0	0	0	0	0
B	r-PEL_TRA	T90	SWE	0	0	0	0	0	0	0	0.23
B	r-TRAMME	none	DNK	0	0	0	0	0	0	0	0
B	r-TRAMME	none	SWE	0	0	0	0	0	0	0	0
B	TRAMMEL	none	DNK	0	0	0	0	0	0	0	0
B	TRAMMEL	none	SWE	0	0	0	0	0	0	0	0
C	GILL	none	FIN	0	0	0	0	0	0	0	0
C	GILL	none	SWE	0	0	0	0	0	0	0	0
C	OTTER	none	SWE	0	0	0	0	0	0	0	0
C	PEL_TRAV	none	DNK	0	0	0	0	0	0	0	0
C	POTS	none	FIN	0	0	0	0	0	0	0	0
C	r-GILL	none	SWE	0	0	0	0	0	0.06	0.02	0.05
C	r-LONGLIN	none	SWE	0	0	0	0	0	0	0	0
C	r-OTTER	BACOMA	SWE	0	0	0	0	0	0	0	0

A	r-DEM_SE	FDFBAL	DNK	0	0	0	0	0	0	0	0
A	r-OTTER	FDFBAL	DNK	0	0	0	0	0	0	0	0
A	r-PEL_TRA	FDFBAL	DNK	0	0	0	0	0	0	0	0
B	DEM_SEIN	FDFBAL	DNK	0	0	0	0	0	0	0	0
B	OTTER	FDFBAL	DNK	0	0	0	0	0	0	0	0
B	PEL_TRAV	FDFBAL	DNK	0	0	0	0	0	0	0	0
B	r-OTTER	FDFBAL	DNK	0	0	0	0	0	0	0	0
B	r-PEL_TRA	FDFBAL	DNK	0	0	0	0	0	0	0	0

Table 5.1.3.4: Discard rates for cod 2004-2011 by gear category and area. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007. Gear types without an "r" are non-regulated gears. Data from Estonia are only available from 2005 onwards.

REG_AREA	REG_GEAR	2004	2005	2006	2007	2008	2009	2010	2011
28.2	GILL	0	0	0	0	0	0	0	0
28.2	OTTER	0	0	0	0	0	0	0	0
28.2	PEL_TRAWL	0	0	0	0	0	0	0	0
28.2	r-GILL	0	0.02	0.02	0.06	0.02	0	0	0
28.2	r-OTTER	0	0	0	0	0	0	0	0
28.2	r-PEL_TRAWL	0	0	0	0	0	0	0	0
A	BEAM	0	0	0	0	0	0	0	0
A	DEM_SEINE	0	0	0	0	0	0	0	0
A	DREDGE	0	0	0	0	0	0	0	0
A	GILL	0	0.01	0	0	0	0	0	0
A	none	0	0	0	0	0	0	0	0
A	OTTER	0	0	0	0	0	0	0.62	0
A	PEL_TRAWL	0.01	0	0	0	0	0	0	0.19
A	POTS	0	0	0	0	0	0	0	0
A	r-BEAM	0	0	0	0	0	0	0	0
A	r-DEM_SEINE	0.06	0.06	0.04	0.08	0	0.01	0.01	0.03
A	r-GILL	0.01	0.04	0	0	0	0.06	0.02	0.01
A	r-LONGLINE	0.01	0.04	0	0	0	0	0	0
A	r-OTTER	0.03	0.04	0.03	0.04	0.03	0.04	0.08	0.1
A	r-PEL_TRAWL	0	0	0	0	0	0	0	0.22
A	r-TRAMMEL	0.01	0.03	0	0	0	0.05	0	0
A	TRAMMEL	0	0	0	0	0	0	0	0
B	DREDGE	0	0	0	0	0	0	0	0
B	GILL	0	0	0	0	0	0	0	0
B	none	0	0	0	0	0	0	0	0
B	OTTER	0	0	0	0	0	0.08	0	0.05
B	PEL_TRAWL	0	0	0	0	0	0.07	0.43	0.07
B	POTS	0	0	0	0	0	0.08	0	0
B	r-DEM_SEINE	0	0	0	0	0	0	0	0
B	r-GILL	0.03	0.03	0.04	0.07	0.03	0.04	0.08	0.04
B	r-LONGLINE	0.01	0.02	0	0	0	0.07	0.11	0.03
B	r-OTTER	0.05	0.07	0.12	0.12	0.06	0.08	0.07	0.09
B	r-PEL_TRAWL	0.02	0.02	0.11	0.06	0.09	0.07	0.03	0.16
B	r-TRAMMEL	0	0	0	0	0	0	0	0
B	TRAMMEL	0	0	0	0	0	0	0	0
C	GILL	0	0	0	0	0	0	0	0
C	OTTER	0	0	0	0	0	0	0	0
C	PEL_TRAWL	0	0	0	0	0	0	0	0
C	POTS	0	0	0	0	0	0	0	0
C	r-GILL	0	0	0	0	0	0.06	0.02	0.05
C	r-LONGLINE	0	0	0	0	0	0	0	0
C	r-OTTER	0	0	0	0	0	0	0	0
Fully Documented Fishery									
A	r-DEM_SEINE	0	0	0	0	0	0	0	0
A	r-OTTER	0	0	0	0	0	0	0	0
A	r-PEL_TRAWL	0	0	0	0	0	0	0	0
B	DEM_SEINE	0	0	0	0	0	0	0	0
B	OTTER	0	0	0	0	0	0	0	0
B	PEL_TRAWL	0	0	0	0	0	0	0	0
B	r-OTTER	0	0	0	0	0	0	0	0
B	r-PEL_TRAWL	0	0	0	0	0	0	0	0

Table 5.1.3.5 Cod landings (L) and discards (D) at ages 1-9 (‘000) by gear category and area 2003-2011. An “r” in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 2.6). Gear types without an “r” are non-regulated gears. Data on age distribution were available for sub-areas A and B only. Data from Estonia are only available from 2005 onwards.

REG_AREA	Year	REG_GEAR	SPECON	LANDINGS t	DISCARDS t	AGE 1 L	AGE 1 D	AGE 2 L	AGE 2 D	AGE 3 L	AGE 3 D	AGE 4 L	AGE 4 D	AGE 5 L	AGE 5 D
28.2	2003	r-GILL	none	99.771	5.4		1.248		0.777	4.287	7.352	68.683	2.219	33.047	0.277
28.2	2003	r-OTTER	BACOMA	16.397	0.4			0.012	0.015	0.327	0.166	3.112	0.575	5.492	0.004
28.2	2004	r-OTTER	BACOMA	47.475	0.2					0.199		2.682		8.146	
28.2	2005	r-OTTER	BACOMA	158.267						3.205		62.763		67.57	
28.2	2006	r-GILL	none	15.267	0.42				0.023	0.085	0.189	5.203	0.333	7.823	0.018
28.2	2006	r-OTTER	BACOMA	63.466	0.5					7.009		29.352		18.838	
28.2	2007	r-GILL	none	90.046	7.02		0.627	0.098	5.875	4.003	5.19	31.266	0.354	37.428	0.174
28.2	2008	r-GILL	none	24.127	1.22		0.022		0.707	3.18	1.239	7.17	0.197	7.758	0.044
A	2003	DREDGE	none	8.496		1.239		9.417		1.089					
A	2003	GILL	none	111.743	0.002	3.367		31.01		29.512		10.539		2.489	
A	2003	none	none	2960.165		195.562		1176.279		712.154		245.126		53.616	
A	2003	OTTER	none	152.681		21.786		90.743		36.326		7.536		1.097	
A	2003	PEL_TRAWL	none	122.178		8.201		69.607		39.137		8.136		1.307	
A	2003	r-DEM_SEINE	none	1351.443	80.214	141.798	57.83	671.326	142.27	439.22	45.88	101.381	5.53	11.823	0.59
A	2003	r-GILL	none	3998.597	59.267	191.713	11.174	1437.638	31.013	1027.16	4.077	350.883		70.184	
A	2003	r-LONGLINE	none	395.574	4.397	7.622		143.518		164.2		45.696		5.696	
A	2003	r-OTTER	none	11720.873	1550.217	1132.676	932.936	6186.382	2416.389	3687.89	209.248	877.963	0.106	139.89	0.01
A	2003	r-PEL_TRAWL	none	92.81	1.484	14.175	0.629	54.646	1.754	19.297	0.245	4.119		0.457	
A	2003	r-TRAMMEL	none	300.606	3.803	7.666		48.33		38.652		31.23		11.701	
A	2003	TRAMMEL	none	3.907	0.056	0.275		2.173		0.859		0.321		0.056	
A	2004	GILL	none	64.843	0	3.235		9.006		25.531		4.687		1.412	
A	2004	none	none	2786.019		206.939		675.406		1318.615		201.666		38.844	
A	2004	OTTER	none	97.905		9.926		26.246		46.838		6.138		1.349	
A	2004	PEL_TRAWL	none	91.08	0.192	2.161	0.202	23.48	0.302	49.636	0.101	7.257		1.551	
A	2004	r-DEM_SEINE	none	1323.573	80.862	95.238	33.495	325.636	153.42	819.498	55.411	55.816	6.323	10.157	0.791
A	2004	r-GILL	none	3846.883	55.115	144.728		698.335		1599.098		315.254		70.641	
A	2004	r-LONGLINE	none	478.922	3.524	25.909		106.176		241.11		37.396		6.027	
A	2004	r-OTTER	none	11433.168	327.124	640.812	415.127	3131.414	388.368	6348.471	44.898	696.05	0.011	132.425	
A	2004	r-PEL_TRAWL	none	33.935		3.25		12.207		17.649		2.827		0.297	
A	2004	r-TRAMMEL	none	265.909	3.386	3.688		13.911		53.046		23.178		11.493	
A	2004	TRAMMEL	none	4.223				0.098		0.784		0.492		0.204	
A	2005	DEM_SEINE	none	0.487		0.001		0.321		0.092		0.08		0.011	
A	2005	GILL	none	281.902	4.031	14.237		155.71		41.284		39.042		7.959	
A	2005	none	none	467.056		10.597		191.321		58.008		76.153		13.724	
A	2005	OTTER	none	201.444		6.976		124.449		31.696		30.894		6.444	
A	2005	PEL_TRAWL	none	263.992		19.112		138.325		29.096		31.939		7.344	
A	2005	POTS	none	271.683		39.316		220.18		27.567		15.44		3.496	
A	2005	r-DEM_SEINE	none	1082.046	70.676	83.986	98.499	781.996	105.029	158.968	30.537	145.72	3.187	19.44	0.36
A	2005	r-GILL	none	6144.971	253.906	207.236	49.765	2758.068	38.752	817.522	2.444	795.494	0.045	197.915	
A	2005	r-LONGLINE	none	1245.759	58.067	20.077		604.882		200.849		193.047		43.748	
A	2005	r-OTTER	BACOMA	274.871	2.137				1.71	8.815	3.419	64.352	0.57	57.299	
A	2005	r-OTTER	none	10454.959	460.271	418.881	707.1	6673.821	528.751	1645.394	1.536	1423.472	0.247	274.103	0.029
A	2005	r-PEL_TRAWL	BACOMA	10.911	0.103				0.029	0.991	0.225	7.018	0.008	2.394	
A	2005	r-PEL_TRAWL	none	104.713		0.994		70.232		20.587		16.877		4.253	
A	2005	r-TRAMMEL	none	542.518	18.552	6.236		84.467		40.106		78.031		20.939	
A	2005	TRAMMEL	none	20.319		0.279		4.641		2.005		3.422		0.704	
A	2006	DEM_SEINE	none	6.359		0.502		1.996		2.729		0.283		0.056	
A	2006	GILL	none	141.715		3.694		24.657		83.758		6.179		2.947	
A	2006	none	none	849.63		12.749		113.703		448.044		36.832		25.389	
A	2006	OTTER	none	180.724		0.282		15.23		130.528		6.067		5.143	
A	2006	PEL_TRAWL	none	264.373		1.392		27.535		165.965		9.785		6.775	

Table 5.1.3.5 continued.

A	2006	POTS	none	89.848		3.598		23.549		51.43		3.273		0.904	
A	2006	r-DEM_SEINE	none	1338.573	63.56	31.738	28.074	195.954	111.83	1015.075	42.505	51.533	5.205	19.808	0.864
A	2006	r-GILL	none	5883.069	0.194	113.775	0.191	916.596	0.166	2957.087	0.069	310.229		159.137	
A	2006	r-LONGLINE	none	737.746		6.591		112.838		420.531		28.09		17.969	
A	2006	r-OTTER	BACOMA	5709.844	384.024	190.925	374.631	1509.086	300.3	3806.33	161.139	95.523		34.134	
A	2006	r-OTTER	none	6471.263	4.788	118.419	4.773	1022.277	7.642	4501.082	2.741	244.705	0.37	153.741	0.05
A	2006	r-PEL_TRAWL	none	98.334		9.189		37.824		56.597		3.829		0.949	
A	2006	r-TRAMMEL	none	588.309		2.473		29.237		196.202		31.435		34.764	
A	2006	TRAMMEL	none	5.732		0.006		0.135		1.597		0.286		0.278	
A	2007	DEM_SEINE	none	0.217		0.006		0.083		0.075		0.065		0.017	
A	2007	GILL	none	142.01		1.075		31.024		31.861		40.364		9.282	
A	2007	none	none	143.127		0.786		28.535		27.127		33.827		8.876	
A	2007	OTTER	none	89.405		0.081		14.231		16.203		24.439		4.641	
A	2007	PEL_TRAWL	none	146.056		0.076		12.461		19.093		40.29		8.1	
A	2007	POTS	none	179.698		3.127		64.205		55.742		49.22		11.013	
A	2007	r-DEM_SEINE	none	1425.059	135.692	6.235	252.374	351.521	196.09	380.874	55.554	461.559	4.97	83.965	0.72
A	2007	r-GILL	none	5523.286	0.542	47.115	0.303	938.331	0.752	1045.492	0.06	1367.781		375.881	
A	2007	r-LONGLINE	none	752.957		4.214		133.014		135.101		173.786		46.794	
A	2007	r-OTTER	BACOMA	6436.365	541.695	681.367	700.85	2293.944	674.622	1764.361	72.631	1146.095	25.98	44.341	
A	2007	r-OTTER	none	6927.983	8.954	41.697	15.832	1667.457	11.596	1639.089	3.445	2019.189	0.663	364.712	0.01
A	2007	r-PEL_TRAWL	none	18.536		0.346		5.203		4.94		5.498		1.188	
A	2007	r-TRAMMEL	none	580.558		0.396		20.792		30.394		108.467		34.99	
A	2007	TRAMMEL	none	7.974		0.011		0.996		1.252		2.148		0.395	
A	2008	GILL	none	28.047		0.109		1.519		4.547		3.909		3.113	
A	2008	none	none	70.548		0.315		6.354		15.599		11.298		7.677	
A	2008	OTTER	none	23.84		0.018		1.426		6.229		4.733		2.581	
A	2008	PEL_TRAWL	none	103.242		163.15		47.191		14.311		13.294		10.057	
A	2008	POTS	none	65.866		1.82		12.501		21.538		13.523		6.672	
A	2008	r-DEM_SEINE	none	1222.033	1.918	8.144	6.91	110.552	1.41	414.228	0.2	279.735	0.02	167.307	
A	2008	r-GILL	none	3512.15	1.366	6.436	0.466	231.366	1.832	755.267	0.914	460.659	0.104	361.942	0.007
A	2008	r-LONGLINE	none	285.849		4.23		37.839		80.329		55.693		29.733	
A	2008	r-OTTER	BACOMA	5021.773	319.094	138.263	195.363	1489.189	438.133	2306.211	192.906	765.941	20.621	213.853	0.708
A	2008	r-OTTER	none	5501.681	11.261	53.625	18.221	677.274	17.986	1464.901	5.586	1005.707	1.209	638.215	0.033
A	2008	r-PEL_TRAWL	none	7.446		0.01		0.98		1.131		0.843		0.846	
A	2008	r-TRAMMEL	none	596.71	0.102	0.567	0.046	12.654	0.126	47.133	0.078	48.494	0.025	52.878	0.003
A	2008	TRAMMEL	none	5.71						0.094		0.307		0.569	
A	2009	GILL	none	13.399	0.009	0.408	0.006	0.435	0.018	1.235	0.007	2.669		1.695	
A	2009	none	none	32.421		3.515		4.802		9.484		11.49		4.292	
A	2009	OTTER	none	55.491	0.005	1016.518	0.002	0.454	0.009	3.991	0.004	7.597		5.241	
A	2009	PEL_TRAWL	none	46.466		139.355		49.965		9.755		5.527		3.642	
A	2009	POTS	none	62.167		16.071		16.821		14.342		16.407		6.361	
A	2009	r-DEM_SEINE	none	580.543	9.188	10.966	5.78	16.69	11.609	122.564	10.497	215.344	1.792	102.863	0.284
A	2009	r-GILL	none	3167.023	239.306	110.424	43.962	162.85	164.278	469.97	243.438	701.703	86.101	350.331	5.128
A	2009	r-LONGLINE	none	303.536	1.122	11.391	0.69	16.919	2.226	51.741	0.837	91.567	0.028	39.859	
A	2009	r-OTTER	BACOMA	3003.325	342.219	14.309	118.15	272.286	310.083	1194.768	367.205	1096.295	132.903	272.874	8.158
A	2009	r-OTTER	none	5352.894	9.955	322.178	15.312	464.318	17.115	1215.248	5.764	1725.443	1.291	807.725	0.045
A	2009	r-PEL_TRAWL	none	22.979		5.444		6.113		5.6		6.205		2.232	
A	2009	r-TRAMMEL	none	393.644	21.442	2.901	11.438	3.929	35.721	13.083	21.735	36.621	3.49	40.037	0.104
A	2010	GILL	none	10.139	0	0.014		2.219		3.516		2.164		0.964	
A	2010	none	none	56.584	0	0.53		18.038		20.504		11.574		4.377	
A	2010	OTTER	none	8.953	0	0.035		1.812		4.324		1.883		0.944	
A	2010	PEL_TRAWL	none	65.084	0	2.761		28.659		17.518		11.855		4.753	
A	2010	POTS	none	98.783	0	0.056		29.228		43.637		28.112		10.421	
A	2010	r-DEM_SEINE	none	465.903	6.571	0.006	4.512	59.817	9.142	241.402	7.52	148.637	1.73	52.239	0.351
A	2010	r-GILL	none	3606.88	91.26	33.012	78.252	1209.113	123.508	884.591	22.98	689.736	16.913	290.64	3.739

Table 5.1.3.5 continued.

A	2010	r-LONGLINE	none	309.634	0	0.264		77.834		101.079		59.194		23.977	
A	2010	r-OTTER	BACOMA	3199.417	633.656	111.888	246.326	1624.443	798.091	616.492	204.851	687.798	158.161	236.308	43.714
A	2010	r-OTTER	none	4437.542	12.182	2.028	7.095	769.84	28.009	1952.027	2.255	1245.13	0.56	474.49	0.08
A	2010	r-OTTER	T90	44.805	4.304	1.201	4.487	20.933	6.735	13.174	0.348	3.954		1.056	
A	2010	r-PEL_TRAWL	none	35.272				6.272		17.997		10.421		3.475	
A	2010	r-TRAMMEL	none	477.124	0.835	3.276	0.864	80.909	1.047	86.085	0.047	70.248		39.75	
A	2010	TRAMMEL	none	0.408				0.063		0.153		0.126		0.056	
A	2011	GILL	NONE	8.537	0.018		0.005	0.145	0.018	1.597	0.012	2.88		1.157	
A	2011	none	none	29.973	0			0.639		7.832		11.468		3.981	
A	2011	OTTER	NONE	68.256	0			0.641		13.511		28.089		10.133	
A	2011	PEL_TRAWL	NONE	42.628	10.262	0.034	1.109	5.309	11.671	16.36	9.617	11.538	0.267	2.909	
A	2011	POTS	none	53.769	0.083		0.034	3.768	0.109	25.086	0.042	16.39	0.001	3.65	
A	2011	r-DEM_SEINE	none	375.409	13.428		2.866	2.18	20.677	73.93	19.38	179.658	5.306	65.61	1.185
A	2011	r-GILL	NONE	3444.069	47.237	8.411	32.547	323.982	61.958	994.287	23.899	725.181	0.721	261.348	0.202
A	2011	r-LONGLINE	NONE	433.744	2.184		0.732	28.644	2.695	130.594	1.293	132.481	0.033	46.374	0.017
A	2011	r-OTTER	BACOMA	4597.402	1001.006	84.87	335.014	1850.977	1284.242	2027.689	518.73	481.697	11.678	92.516	
A	2011	r-OTTER	NONE	5383.344	0.624	0.22	4.874	101.421	0.636	1241.5	0.152	2186.514	0.006	781.727	
A	2011	r-OTTER	T90	149.196	64.834		12.177	49.083	80.763	74.243	41.872	27.445	0.448	5.934	
A	2011	r-PEL_TRAWL	BACOMA	15.003	5.095		0.313	1.488	6.334	10.166	4.218	3.561	0.02	0.709	
A	2011	r-PEL_TRAWL	none	0.094	0			0		0.008		0.03		0.014	
A	2011	r-TRAMMEL	NONE	528.141	1.471		0.624	11.9	1.89	58.072	0.784	85.658	0.018	41.691	0.004
A	2011	TRAMMEL	none	0.185	0			0.002		0.038		0.072		0.028	
B	2003	GILL	none	20.697				0.613		11.417		6.644		0.776	
B	2003	none	none	925.83				97.408		483.702		214		51.617	
B	2003	OTTER	none	58.666				6.365		43.397		12.686		1.652	
B	2003	PEL_TRAWL	none	88.424				10.275		46.681		19.006		5.321	
B	2003	r-DEM_SEINE	none	7.215				4.258		3.38		0.364		0.056	
B	2003	r-GILL	none	6366.842	133.513			717.591	12.478	1922.261	25.178	1456.398	13.742	841.46	6.942
B	2003	r-LONGLINE	none	1242.873	31.908			71.491		374.547		248.818		110.97	
B	2003	r-OTTER	BACOMA	4245.68	550.055		7.545	2.435	182.651	446.545	1008.081	1982.105	258.587	1599.822	4.434
B	2003	r-OTTER	none	8686.802	674.407	193.11	256.056	1625.259	1219.829	4704.274	612.699	1791.554	122.096	532.152	18.646
B	2003	r-PEL_TRAWL	none	153.537				11.845		114.53		35.725		7.886	
B	2003	r-TRAMMEL	none	11.067	0.017			0.413		6.61		3.179		0.496	
B	2004	GILL	none	53.257				1.789		17.892		18.115		3.364	
B	2004	none	none	1062.323				60.055		356.007		355.396		64.172	
B	2004	OTTER	none	107.187				10.12		50.884		34.852		4.165	
B	2004	PEL_TRAWL	none	513.013				61.492		239.921		160.101		19.924	
B	2004	r-DEM_SEINE	none	0.292				0.014		0.177		0.096		0.008	
B	2004	r-GILL	none	8571.745	235.801		8.261	126.724	49.106	1881.88	152.67	3038.285	42.58	1409.652	23.985
B	2004	r-LONGLINE	none	3557.042	44.161			316.944		1283.902		998.512		182.028	
B	2004	r-OTTER	BACOMA	5521.562	268.801				147.946	605.673	407.316	1721.955	91.806	1297.787	1.599
B	2004	r-OTTER	none	4465.61	100.646	56.559	45.891	717.67	130.126	2216.117	82.321	1304.436	18.517	149.195	3.389
B	2004	r-PEL_TRAWL	BACOMA	1952.358	52.651			0.966	20.113	310.747	86.213	854.516	0.105	275.568	
B	2004	r-PEL_TRAWL	none	1923.959	25.054	59.274	17.324	434.71	33.007	823.655	4.906	318.333		51.643	
B	2004	r-TRAMMEL	none	9.025	0.024			0.609		5.68		3.291		0.233	
B	2005	GILL	none	36.936	0			3.784		8.067		13.437		5.564	
B	2005	none	none	44.503				3.432		17.15		19.589		4.194	
B	2005	OTTER	none	119.711				17.505		44.261		44.838		10.175	
B	2005	PEL_TRAWL	none	608.866				98.261		240.13		225.547		46.652	
B	2005	POTS	none	0.162				0.022		0.067		0.077		0.017	
B	2005	r-DEM_SEINE	none	89.165				36.387		29.443		15.303		4.785	
B	2005	r-GILL	none	6361.617	201.88			296.943	29.809	1846.513	122.058	2311.562	44.407	890.284	8.359
B	2005	r-LONGLINE	none	3134.62	49.531		0.113	447.752		1371.774	19.118	1005.761		238.877	
B	2005	r-OTTER	BACOMA	7421.368	1034.773		13.19	59.263	942.995	1979.084	1230.47	2675.948	321.698	1714.025	40.696
B	2005	r-OTTER	none	4342.704	84.885		15.543	1124.893	100.941	1731.687	91.928	1324.534	22.838	267.843	4.26

Table 5.1.3.5 continued.

B	2005	r-PEL_TRAWL	none	874.661	31.823	24.126	53.573	426.13	31.064	211.812		124.179		20.228	
B	2005	r-TRAMMEL	none	2.362	0			0.265		0.291		0.255		0.222	
B	2006	GILL	none	55.511				8.672		37.673		13.427		3.062	
B	2006	none	none	90.826				11.003		59.082		20.97		4.791	
B	2006	OTTER	none	55.743				7.492		38.665		12.293		2.688	
B	2006	PEL_TRAWL	none	374.902				70.241		287.085		78.138		14.525	
B	2006	r-DEM_SEINE	none	82.075				9.889		56.552		20.222		4.248	
B	2006	r-GILL	none	3308.567	122.615		1.051	133.603	14.065	1050.015	72.029	1032.034	79.226	752.946	5.915
B	2006	r-LONGLINE	none	3768.222				351.051		1999.403		1098.55		279.634	
B	2006	r-OTTER	BACOMA	13698.764	2221.251		1.767	422.064	1376.364	5518.013	3742.896	5753.465	262.4	2387.762	44.053
B	2006	r-OTTER	none	6555.415	383.496		35.202	914.931	347.398	4885.862	473.963	1654.541	158.356	327.422	40.454
B	2006	r-PEL_TRAWL	BACOMA	3565.828	539.758				169.105	2551.583	1160.52	1063.002		226.856	
B	2006	r-PEL_TRAWL	none	1333.691				135.15		1040.951		403.786		79.349	
B	2006	r-TRAMMEL	none	4.239				0.525		2.276		0.713		0.217	
B	2006	TRAMMEL	none	0.104				0.032		0.062		0.007		0.002	
B	2007	GILL	none	42.725				0.253		4.848		21.349		13.177	
B	2007	none	none	15.958				0		1.352		7.69		4.736	
B	2007	OTTER	none	24.061				0.179		3.434		13.564		7.405	
B	2007	PEL_TRAWL	none	504.133				2.977		55.554		259.533		161.061	
B	2007	POTS	none	0.276				0.007		0.054		0.137		0.05	
B	2007	r-DEM_SEINE	none	44.82				0.001		4.431		24.796		14.834	
B	2007	r-GILL	none	4339.8	384.991		43.662	31.925	152.905	668.155	135.551	1744.927	47.376	993.936	44.003
B	2007	r-LONGLINE	none	2099.686				4.646		361.239		1046.827		395.17	
B	2007	r-OTTER	BACOMA	11081.297	2125.452			32.22	673.868	1638.446	2336.389	3526.93	161.632	3785.906	
B	2007	r-OTTER	none	5208.02	128.586		14.105	45.403	125.161	722.638	175.991	3072.911	52.557	1691.638	12.142
B	2007	r-PEL_TRAWL	BACOMA	4653.347	468.688	256.286	286.88	779.624	466.126	1502.068	325.263	2119.728	36.71	274.869	
B	2007	r-PEL_TRAWL	none	2088.183				0.182		250.534		1234.89		757.606	
B	2007	r-TRAMMEL	none	36.81				0.068		0.642		3.512		3.886	
B	2007	TRAMMEL	none	1.225				0.035		0.147		0.398		0.237	
B	2008	DREDGE	none	5.816				0.043		0.858		2.858		2.557	
B	2008	GILL	none	8.271				0.27		2.021		2.847		2.288	
B	2008	none	none	6.33				0.062		1.055		1.905		1.648	
B	2008	OTTER	none	15.686				0.237		2.95		6.12		5.179	
B	2008	PEL_TRAWL	none	347.431				8.673		79.944		146.085		118.171	
B	2008	r-GILL	none	5328.486	204.764		0.811	24.367	134.74	1268.727	174.137	1511.163	52.973	1423.372	25.739
B	2008	r-LONGLINE	none	1750.025	3.82			5.511		463.233		764.862		253.761	
B	2008	r-OTTER	BACOMA	13869.162	1216.164	173.798	170.408	1851.315	942.251	5206.419	1546.441	5567.228	159.255	1710.958	26.812
B	2008	r-OTTER	none	5867.208	129.825		13.693	120.263	133.825	1307.971	193.244	2375.298	58.442	1933.505	13.444
B	2008	r-PEL_TRAWL	BACOMA	1097.852	111.801	30.225	33.551	333.267	152.378	514.04	83.123	203.297	8.969	56.224	0.321
B	2008	r-PEL_TRAWL	none	13.978				0.344		4.129		5.614		4.155	
B	2008	r-TRAMMEL	none	26.346				0.495		7.959		8.789		5.547	
B	2009	GILL	none	1.191	0					0.168		0.479		0.417	
B	2009	OTTER	none	32.578	3.182		0.362	0.148	4.625	5.005	3.548	17	0.234	10.97	
B	2009	PEL_TRAWL	none	412.991	33.326		1.124	0.107	38.693	32.897	47.594	104.731	2.228	100.758	
B	2009	r-GILL	none	7588.386	292.835		23.243	53.549	460.026	1067.241	358.559	2115.902	17.2	1922.201	3.813
B	2009	r-LONGLINE	none	1252.325	90.128		21.322	105.374	175.663	482.876	84.223	315.939	2.416	146.13	
B	2009	r-OTTER	BACOMA	18071.002	2050	24.608	214.257	764.415	2444.938	8085.408	2537.783	8059.779	254.517	2077.616	9.051
B	2009	r-OTTER	NONE	6873.357	151.244		14.288	62.569	163.485	1693.2	234.662	3234.29	62.804	2020.749	13.387
B	2009	r-PEL_TRAWL	BACOMA	2012.943	171.706	3.853	10.833	108.319	116.623	767.399	186.487	740.563	56.472	194.934	5.256
B	2009	r-PEL_TRAWL	none	308.598	0			0.95		49.033		170.878		114.779	
B	2009	r-TRAMMEL	none	68.106	0.017		0.01	0.057	0.038	3.117	0.006	12.824	0.001	14.165	
B	2010	GILL	none	1.239	0			0.096		0.529		0.406		0.086	
B	2010	none	NONE	1.762	0			0.026		0.357		0.882		0.512	
B	2010	OTTER	none	11.147	0			0.696		4.43		4.5		1.291	
B	2010	PEL_TRAWL	NONE	157.856	0			3.547		41.107		70.3		20.911	

Table 5.1.3.5 continued.

B	2010	POTS	NONE	7.641	0			0.557		2.995		2.659		0.728	
B	2010	r-GILL	none	7689.013	705.003		177.973	253.126	1116.061	2120.129	862.49	3008.796	155.164	1164.895	
B	2010	r-LONGLINE	none	1944.818	251.481		26.656	36.294	347.26	609.943	330.796	824.562	23.411	247.46	0.45
B	2010	r-OTTER	BACOMA	21588.374	2122.619	65.397	322.622	2547.409	2648.829	8128.85	2376.654	9014.869	267.432	2220.047	26.163
B	2010	r-OTTER	none	9760.818	250.561		18.519	68.023	238.775	1340.221	378.925	5642.664	155.642	2881.451	35.303
B	2010	r-OTTER	T90	886.7	74.835		16.033	52.274	117.621	348.7	56.324	374.119	4.292	81.793	0.068
B	2010	r-PEL_TRAWL	BACOMA	1636.498	52.489	25.12	13.246	640.654	66.179	284.166	20.418	373.507	12.749	152.341	4.252
B	2010	r-PEL_TRAWL	none	68.759	0			0.113		7.669		40.175		19.32	
B	2011	DEM_SEINE	none	1.047	0					0.116		0.499		0.467	
B	2011	GILL	NONE	9.958	0.008		0.001	1.196	0.015	6.623	0.004	2.383		0.474	
B	2011	none	none	24.109	0					2.295		10.078		10.182	
B	2011	OTTER	none	35.11	2.442		0.684	9.932	4.942	18.008	0.444	6.439		3.614	
B	2011	PEL_TRAWL	none	315.033	23.03		6.17	65.576	45.859	221.601	4.965	54.202	0.003	13.505	
B	2011	POTS	NONE	2.7	0.018		0.008	0.404	0.037	1.74	0.003	0.605		0.136	
B	2011	r-DEM_SEINE	none	90.22	0					5.302		33.668		39.649	
B	2011	r-GILL	none	5286.507	236.378		96.528	479.616	452.983	2238.068	64.431	1758.594	1.373	835.401	1.46
B	2011	r-LONGLINE	none	1599.647	51.296		10.867	184.969	93.202	766.693	26.228	509.38	0.481	195.642	0.166
B	2011	r-OTTER	BACOMA	20021.413	2558.339	32.275	265.977	3984.485	3974.896	11338.989	1873.155	5566.181	107.323	1881.638	11.86
B	2011	r-OTTER	none	10126.845	10.411		0.5	11.88	6.27	1360.414	14.97	4387.543	8.3	4289.898	2.21
B	2011	r-OTTER	T90	1145.247	189.755		11.262	168.884	298.37	952.816	141.353	215.263	0.117	23.276	
B	2011	r-PEL_TRAWL	BACOMA	3168.744	601.783	98.319	145.229	1353.813	877.697	1989.028	432.264	415.142	9.413	48.846	0.165
B	2011	r-PEL_TRAWL	none	56.019	0					3.17		22.834		27.418	
B	2011	r-PEL_TRAWL	T90	23.938	7.493		0.049	2.451	10.979	20.953	6.589	4.96	0.004	0.401	
B	2011	r-TRAMMEL	none	1.485	0			0.002		1.101		0.136		0.124	
C	2010	r-GILL	NONE	41.097	1.25		1.544	0.372	2.075	2.209	0.515	7.634	0.032	3.673	
C	2011	r-GILL	NONE	59.892	3.427		0.713	0.363	6.826	7.114	1.235	8.473	0.001	4.574	0.01
A	2010	r-OTTER	FDFBAL	263.837				46.612		132.395		79.579		27.217	
A	2010	r-PEL_TRAWL	FDFBAL	7.859				3.351		3.377		1.734		0.538	
A	2011	r-DEM_SEINE	FDFBAL	56.336	0			0.191		8.397		23.65		9.376	
A	2011	r-OTTER	FDFBAL	620.265	0			9.77		151.017		284.055		99.842	
B	2010	PEL_TRAWL	FDFBAL	1.741				0.002		0.162		0.92		0.473	
B	2010	r-OTTER	FDFBAL	724.89				5.708		105.847		458.648		219.987	
B	2010	r-PEL_TRAWL	FDFBAL	18.544				0.014		2.229		11.237		3.854	
B	2011	DEM_SEINE	FDFBAL	1.047	0					0.116		0.499		0.467	
B	2011	PEL_TRAWL	FDFBAL	0.023	0					0.007		0.009		0.007	
B	2011	r-OTTER	FDFBAL	1633.044	0			2.512		271.619		767.627		684.895	

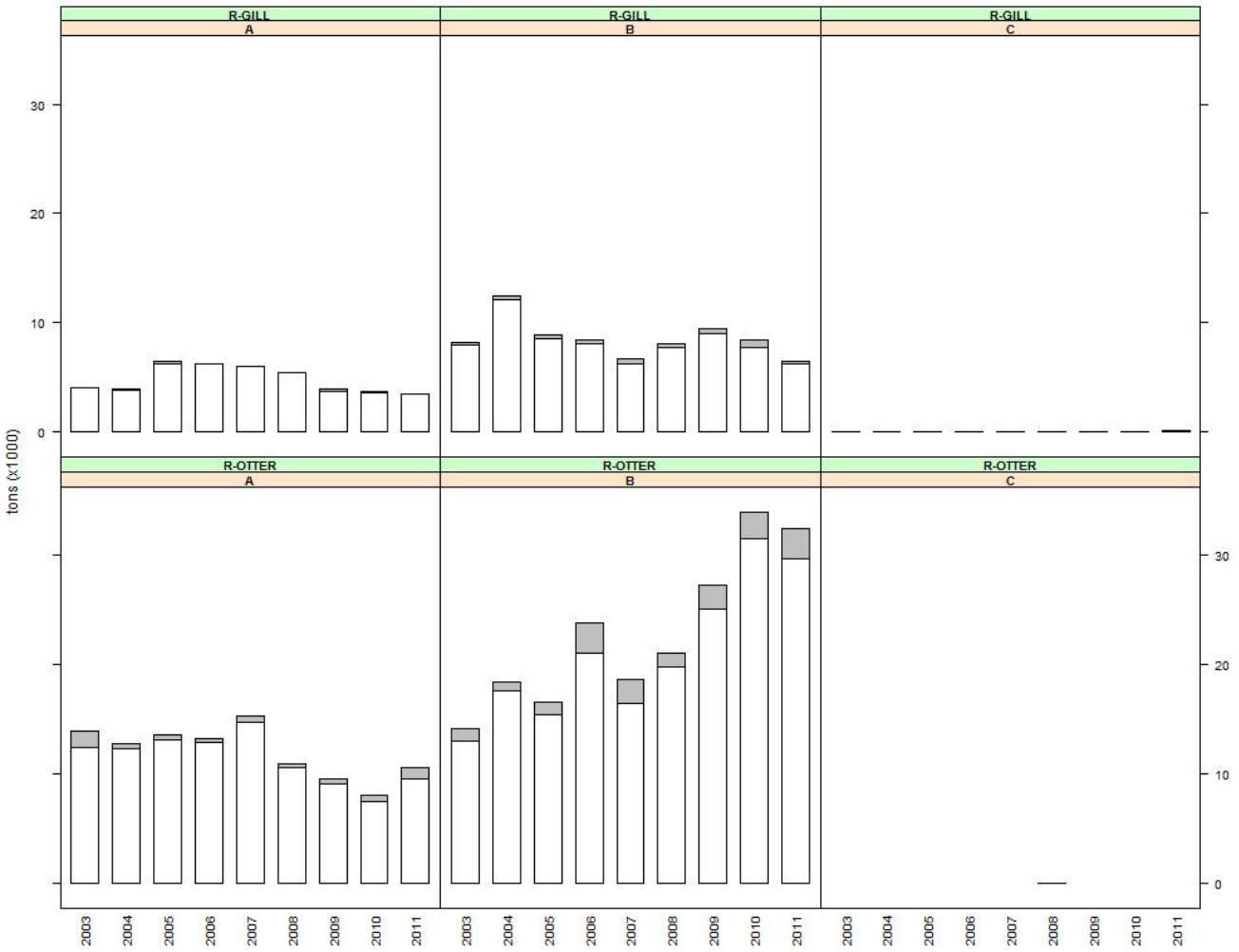

Figure 5.1.3.1 Catch and landings in tonnes of Baltic cod by sub-area and gear category 2003-2011. White bars show landings, grey bars discards. An “r” in front of the gear type indicates regulated gears in accordance with R(EC) 1098/2007 (see section 2.6).

5.1.4 Tor 1.d Catches (landings and discards) of non-cod species in weight and numbers at age by area, Member State and fisheries

Table 5.1.4.1 Major non-cod species caught at ages 1-9 (thousands) in landings, discards and discard rates in the Baltic by area, gears (r- indicates regulated gears).

ANNEX	REG_AREA	SPECIES	Year	REG_GEAR	SPECON	LANDINGS t	DISCARDS t	AGE 0 L	AGE 0 D	AGE 1 L	AGE 1 D	AGE 2 L	AGE 2 D	AGE 3 L	AGE 3 D	AGE 4 L	AGE 4 D	AGE 5 L	AGE 5 D	AGE 6 L	AGE 6 D	AGE 7 L	AGE 7 D	AGE 8 L	AGE 8 D	AGE 9 L	AGE 9 D	AGE 10 L	AGE 10 D	AGE 11 L	AGE 11 D
Bal	28.2	HER	2003	PEL_TRAWL	none	2011.695				10362.034		8871.71		18045.98		13616.257		4992.822		6647.621		2231.899		2491.36		1597.393		1799.819			
Bal	28.2	HER	2004	PEL_TRAWL	none	2167.531				1447.266		15370.149		16222.357		20185.116		9800.578		6639.821		3581.463		2111.151		1527.189		2211.596			
Bal	28.2	HER	2005	PEL_TRAWL	none	3941.037				5735.18		14794.277		45533.994		31306.21		25270.378		8307.006		7458.276		3082.766		2214.732		2299.296			
Bal	28.2	HER	2006	PEL_TRAWL	none	3391.081				4941.141		10829.861		21291.123		40475.83		16772.204		13380.328		6594.945		1862.341		764.618		2225.398			
Bal	28.2	HER	2007	PEL_TRAWL	none	3167.969				1002.02		6541.603		5971.057		18318.858		26106.256		14199.928		8386.447		4639.046		1524.972		2582.207			
Bal	28.2	HER	2008	PEL_TRAWL	none	3796.644				2975.967		13975.247		23830.344		13934.836		19707.233		24783.223		7692.623		4619.045		1651.843		3904.604			
Bal	28.2	HER	2009	PEL_TRAWL	none	3250.514				1924.424		24800.167		18055.837		23862.142		10586.049		12255.515		10284.883		3232.386		1258.114		997.525			
Bal	28.2	HER	2010	PEL_TRAWL	none	3700.155				1049.412		5217.563		16266.501		12018.416		18474.047		14417.069		10168.023		13267.513		3520.469		4053.624			
Bal	28.2	HER	2011	PEL_TRAWL	NONE	3168.367				1328.844		4535.096		14360.566		31474.644		13772.696		9474.058		4979.445		3345.433		3779.766		1384.406		66.641	
Bal	28.2	SPR	2003	PEL_TRAWL	none	30723.511		47131.18		884129.569		710218.483		305724.563		758213.516		53574.181		424734.278		64941.442		236063.208							
Bal	28.2	SPR	2004	PEL_TRAWL	none	38940.177		2029.594		1343145.463		1815783.681		667162.605		234260.964		519462.671		54134.48		256970.248		197595.959							
Bal	28.2	SPR	2005	PEL_TRAWL	none	58364.978		70337.613		219671.376		4864605.092		1632252.676		480063.075		156359.43		104628.228		69070.109		105994.143							
Bal	28.2	SPR	2006	PEL_TRAWL	none	49090.726		3565.385		715061.038		945710.207		3739640.499		610211.489		159615.494		44385.82		42592.183		55724.185							
Bal	28.2	SPR	2007	PEL_TRAWL	none	47833.613		8882.29		904526.386		1413745.799		302683.352		2019991.601		439587.009		137968.742		34535.507		79716.926							
Bal	28.2	SPR	2008	PEL_TRAWL	none	50089.909		46350.003		891490.606		2062727.754		1027137.524		151182.676		881846.413		191475.782		28502.81		27097.513							
Bal	28.2	SPR	2009	PEL_TRAWL	none	38131.211		11212.103		1207183.351		856338.417		1022451.341		391955.034		72248.237		332995.421		92065.549		52192.373							
Bal	28.2	SPR	2010	PEL_TRAWL	none	36039.748		97909.794		247420.74		2366902.146		486147.225		415731.124		157903.928		74797.673		136083.794		48298.549							
Bal	28.2	SPR	2011	PEL_TRAWL	NONE	23371.374		65233.765		368178.507		263342.474		1348382.959		282858.437		116322.699		71836.761		24830.505		70621							
Bal	A	FLE	2005	r-OTTER	none	383.469	36.607					118.559	88.301	402.261	52.315	326.732	9.411	71.946		10.87		3.15									
Bal	A	FLE	2008	r-GILL	none	836.939	559.405				0.019	20.558	76.651	419.003	807.358	674.702	856.067	687.544	301.843	323.079	47.08	112.993	19.572	38.23		20.595		0.63		0.114	
Bal	A	FLE	2008	r-OTTER	BACOMA	2754.444	664.414				15.208	155.394	424.004	2565.574	1521.577	3418.23	770.486	2080.398	367.582	636.844	102.987	161.231	19.598	54.457	6.491	19.685	1.362	4.502	0.295	2.253	0.449
Bal	A	FLE	2008	r-TRAMMEL	none	36.344						0.147		7.781		25.427		29.905		14.441		4.098		1.962		1.06		0.543		0.091	
Bal	A	FLE	2009	POTS	none	0.017						0.184		0.023																	
Bal	A	FLE	2009	r-GILL	none	864.632	466.936			0.017	4.713	18.02	647.541	842.155	2017.335	1132.099	352.734	342.704	34.179	128.967	10.391	40.655	9.167	23.638	0.019	11.327		5.265	0.418	1.129	
Bal	A	FLE	2009	r-OTTER	BACOMA	2584.376	1084.23				4.266	69.021	320.268	2776.286	3202.319	3578.057	1390.369	1104.749	220.038	398.792	64.356	130.283	26.486	67.482	6.039	23.42	1.337	4.753	0.039	2.066	0.239
Bal	A	FLE	2009	r-TRAMMEL	none	36.012	0.507					0.117	0.473	13.34	2.087	36.175	0.433	20.327	0.033	8.368	0.017	2.988	0.017	1.475		0.713		0.271		0.054	
Bal	A	FLX	2010	r-GILL	none	121.159	34.111			0.386	10.759	44.923	106.118	191.015	91.873	120.016	14.899	24.89	0.735	9.917	0.599	3.878		1.131		0.304		0.129			
Bal	A	FLX	2010	r-OTTER	BACOMA	230.764	163.123			0.677	12.769	74.116	220.742	317.133	357.417	214.922	138.413	62.308	22.49	28.532	9.455	14.019	3.757	6.866	2.054	2.92	0.856	1.35	0.396	0.364	
Bal	A	FLX	2011	r-GILL	NONE	530.563	18.851					88.11		917.211		433.061		132.51		38.808		48.137		14.002		23.25		4.477		18.282	
Bal	A	FLX	2011	r-OTTER	BACOMA	2190.83	413.68				212.363	1438.302	1778.406	5630.007	524.676	782.063		211.24		33.266		105.934		73.888				5.544			
Bal	A	HER	2003	GILL	none	2438.119						1.067		25.322		1095.232		3486.185		2367.661		3007.043		1750.381		506.547		119.62		31.59	
Bal	A	HER	2003	none	none	672.55				11.161		319.142		1296.457		2894.931		2106.758		484.689		115.03		51.108		1.534		0.268		0.041	
Bal	A	HER	2003	OTTER	none	5473.046						266.315		1841.152		11334.26		16371.6		5291.541		3133.301		1570.237		199.811		52.033		8.359	
Bal	A	HER	2003	PEL_TRAWL	none	17958.783				3416.379		5805.077		18042.7		47774.701		50209.617		14452.843		7836.501		4021.119		613.867		159.722		29.842	
Bal	A	HER	2004	GILL	none	6132.627						4.245		468.937		2538.276		11650.943		12438.823		4038.678		1814.876		692.904		178.711			
Bal	A	HER	2004	OTTER	none	2092.66				881.708		896.581		5425.733		10455.272		5212.569		2096.636		452.914		46.714		17.407		0.311			
Bal	A	HER	2004	PEL_TRAWL	none	17120.31				4310.238		3342.773		15236.061		36950.104		41231.648		28790.897		6437.106		2113.32		828.846		195.923			
Bal	A	HER	2006	PEL_TRAWL	none	16570.109				2515.782		3602.75		53654.361		43076.363		14424.664		9470.044		7470.004		3985.641		651.449		485.57			
Bal	A	HER	2007	OTTER	none	5968.993				28172.185		42651.172		23109.215		8456.412		3454.941		4015.716		985.807		820.764				176.201			
Bal	A	HER	2007	PEL_TRAWL	none	5052.447				65261.449		23139.534		24259.156		7414.971		2648.156		1968.433		986.238		271.485				107.112			
Bal	A	HER	2007	r-OTTER	BACOMA	0.002				0.104		0.005																			
Bal	A	HER	2008	GILL	none	8068.602				87.678		779.521		4017.502		7988.718		15917.385		9969.072		3585.083		2873.901		1391.393		712.599		250.734	
Bal	A	HER	2008	OTTER	none	8897.219				402721.818		31267.525		14399.786		6046.269		1947.385		1089.449		199.724		104.429		19.384		0.548		1.369	
Bal	A	HER	2008	PEL_TRAWL	none	19685.122				14095.363		23994.601		48292.134		45510.237		32687.565		14355.552		4690.764		3255.664		1162.138		507.073		226.415	
Bal	A	HER	2008	r-GILL	none	6.303				0.006		0.317		1.997		5.027		10.976		7.143		2.75		2.377		1.164		0.548		0.18	
Bal	A	HER	2009	GILL	none	6670.985				8.199		481.405		1869.464		6293.282		10056.179		10349.944		4950.543		1544.015		785.417		461.777		108.549	
Bal	A	HER	2009	OTTER	none	5396.287	384.27			22207.177	17725.304	30292.75	4283.62	6807.911	44.721	4445.985	193.822	5043.094		5077.604		2349.553		737.192		331.083		231.64		50.408	
Bal	A	HER	2009	PEL_TRAWL	none	15851.194	0			6345.011		24252.26		30270.06		27825.382		20807.726		15336.835		6387.074		2145.107		902.675		429.275		109.12	
Bal	A	HER	2009	POTS	none	289.523				14.058		355.661		641.871		726.332		476.231		272.271		95.729		34.155		10.001		2.331		0.391	
Bal	A	HER	2009	r-GILL	none	12.375	1.004					0.994		3.094		9.612		15.026		16.794		8.507		2.873		1.768		1.326		0.331	
Bal	A	HER	2010	GILL	none	4976.705	0			1.094		21.243		1071.472		3875.053		7614.406		5426.509		4028.087		2512.968		871.543		412.201		121.575	
Bal	A	HER	2010	OTTER	none	3526.446	489.12			20135.359		22917.158		10684.527		4811.366		2804.527		1411.826		1167.105		767.445		283.797		96.899		37.488	
Bal	A	HER	2010	PEL_TRAWL	none	8160.123				14792.873		12687.881		17096.489		12672.044		9502.304		5676.762		3757.447		2397.491		931.117		394.378		117.604	
Bal	A	HER	2011	GILL	NONE	3468.626	0					18.915		260.671		2568.136		3636.966		4842.329		3724.097		2050.746		881.279		266.645		133.234	
Bal	A	HER	2011	OTTER	NONE	1640.661	0			27907.047		4742.922		2721.736		3820.862		1462.759		1257.756		921.865		444.575		163.48		55.689		22.233	
Bal	A	HER	2011	PEL_TRAWL	NONE	8065.829	0			2811.915		10316.588		9484.427		15849.667		9694.972		8703.301		4871.333		2321.444		856.677		283.951		129.002	
Bal	A	HER	2011	POTS	NONE	257.515	0			0.018		46.192		104.491		1554.053		448.705		212.021		104.025		91.273		0.365		0.224		0.053	
Bal	A	PLE	2004	r-OTTER	none	0.004	0.029						0.04		0.07		0.03		0.01		0.01										
Bal	A	PLE	2006	r-OTTER	none	4.017	20.287				0.16		22.84		37.22		17.45		6.94		2.39		1.13		0.44		0.14		0.09		0.05
Bal	A	PLE	2008	r-GILL	none	253.514	168.724				14.878	67.086	407.764	324.595	608.22	339.933	79.967	60.608	9.103	16.609	2.643	5.77									
Bal	A	PLE	2008	r-OTTER	BACOMA	248.599	131.872				6.687	75.324	295.14	456.565	499.475	250.368	86.418	91.517	17.132	46.287	4.174	12.846		6.776	0.305						
Bal	A	PLE	2008	r-TRAMMEL	none	104.412						5.059		40.292		62.027		64.304		60.733		4.445		4.706							
Bal	A	PLE	2009	r-GILL	none	197.652	5.59					0.064	0.562	12.687	8.454	76.704	12.375	114.186	1.226	75.609	0.013	47.175		29.625		6.054		3.22		3.22	
Bal	A	PLE	2009	r-OTTER	BACOMA	253.476	77.347				1.532	5.071	144.712	128.559	300.596	363.443	110.617	132.069	11.216	49.292	3.009	31.432	0.381	15.369	0.267	6.997		0.526		0.455	
Bal	A	PLE	2009	r-TRAMMEL	none	66.21	0.023							18.104		113.147		40.729		2.249											
Bal	A	PLE	2010	r-OTTER	BACOMA	0.842	0			0.004		0.257		1.551		1.374		0.23		0.037		0.012		0.003		0.007					
Bal	A	PLE	2010	r-OTTER	none	0.422	3.691				3.4		9.87		5.13		1.18		0.33		0.07		0.05		0.01						0.02
Bal	A	PLE	2011	r-DEM_SEINE	none	0.026	1.843				0.02		2.66		3.87		1.35		0.24		0.04		0.01								
Bal	A	PLE	2011	r-OTTER	none	0	0.893				0.16		3.52		3.04		0.35		0.07		0.01										
Bal	A	SPR	2003	OTTER	none	569.645				6414.753		12151.912		8494.512		2061.334		1924.156		1013.688		263.455		257.956							
Bal	A	SPR	2003	PEL_TRAWL	none	2069.45				41513.847		61128.308		36846.217		6218.105		7085.505		2536.174		743.758		1283.292							
Bal	A	SPR	2004	OTTER	none	1842.331				167554.26		20045.212		11441.954		6475.569		2179.707		377.035											
Bal	A	SPR	2004	PEL_TRAWL	none	13290.163				1805426.605		116647.463		66525.06		35326.332		18469.471		696.234											
Bal	A	SPR	2007	OTTER	none	4242.328				211433.373		55600.659		36008.228		91968.726		23170.66		1630.89		1952.436		1128.876		701.575					
Bal	A	SPR	2007	PEL_TRAWL	none	1631.39				123816.373		45927.191		10918.595		23303.058		4473.468		771.232		352.42		116.995		130.561					
Bal	A	SPR	2007	r-OTTER	BACOMA	0.03				0.379		0.454		0.371		0.934		0.224		0.019		0.021		0.009		0.008					
Bal	A	SPR	2008	OTTER	none	3402.927				5903.733		71270.997		48587.532		49932.895		40980.655		5286.729		3200.246		1103.034							
Bal	A	SPR	2008	PEL_TRAWL	none	4095.215				7099.583		93477.474		60051.793		50628.47		46579.774		8277.996		3105.368		868.2							
Bal	A	SPR	2009	OTTER	none	2480.522	32.969			15370.069	926.624	33152.059	804.558	69272.472	603.474	19029.601	228.448	20702.275	154.957	6473.447	63.688	2151.728	13.637	375.272		588.032	6.018				
Bal	A	SPR	2009	PEL_TRAWL	none	7024.67	0			104457.577		86442.21		183716.13		50197.443		56751.022		18108.744		6429.227		1124.624		1995.7					
Bal	A	SPR	2011	PEL_TRAWL	NONE	668.86	0			3808.802		6822.74		22074.53		6855.863		2368.09		1010.166		1440.732									
Bal	A	WHG	2008	r-DEM_SEINE	none	0.076	0.613		4.25		5.02		0.63		0.03																
Bal	A	WHG	2009	r-DEM_SEINE	none	0.013	0.259		1.8		2.12		0.27		0.01																
Bal	A	WHG	2011	r-DEM_SEINE	none	0	0.112				0.08		0.18		0.47																
Bal	B	FLE	2005	r-PEL_TRAWL	none	0.025	0.007							0.002	0.008	0.019	0.016	0.024	0.007	0.008	0.001	0.002									
Bal	B	FLE	2008	r-OTTER	BACOMA	692.854	1528.928					28.528	751.932	391.254	5764.811	570.59	1754.508	476.849	501.288	232.308		77.435		44.83		32.604		8.151		0	
Bal	B	FLE	2009	r-OTTER	BACOMA	1679.301	264.796				1.637	21.094	78.373	1060.777	779.646	1611.092	425.069	885.353	91.924	500.729	29.106	219.934	7.99	91.988	2.074	23.438	0.359			2.684	
Bal	B	FLX	2010	r-OTTER	BACOMA	39.754	202.666			0.048	3.014	8.096	175.682	3.104	462.403	46.07	225.485	15.585	38.484	6.595	17.299	3.242	5.958	1.172	2.309	0.394	0.766	0.318	0.5		
Bal	B	FLX	2011	r-GILL	none	281.98	55.099					0.061		3.017		36.073		36.916		43.579		51.364		244.738		189.772		173.337		0.104	
Bal	B	FLX	2011	r-LONGLINE	none	2.64	0											0.114		0.274		0.449		1.1		0.664		0.425		0.458	
Bal	B	FLX	2011	r-OTTER	BACOMA	4614.315	7262.101			0.085		119.519	6.229	2306.506	4300.121	5424.591	43422.209	1695.63	3620.589	1675.331	582.342	1476.385	826.964	1275.238	871.27	670	416.68	448.063	119.975	36.085	3.851
Bal	B	HER	2009	PEL_TRAWL	NONE	21674.458	0	39171.374		84129.116		367687.616		133971.933		230405.516		66180.43		17204.111		58135.253		5837.573		11426.666		9669.406			
Bal	B	HER	2010	OTTER	none	2003.591	0			1344.123				12396.218		8363.704		4928.548		5974.136		5974.136		1941.623		1194.856		896.178			
Bal	B	HER	2010	PEL_TRAWL	none	42627.251	0	5947.599		91612.835		173261.458		418420.093		149972.238		340766.569		102189.039		53878.243		122579.205		22477.392		52706.693			
Bal	B	HER	2011	GILL	NONE	90.41	0							12.055		85.136		239.587		185.34		42.191		41.438							
Bal	B	HER	2011	PEL_TRAWL	none	55659.491	190.944	10531.449		56348.751	14623.796	288104.179	766.088	255283.073		428746.81		154085.811		174200.65		67242.89		57218.216		54484.677		25179.325		10453.314	
Bal	B	PLE	2005	r-OTTER	none	6.704	61.814				10.69		230.5		117.5		11.18		0.06												
Bal	B	PLE	2008	r-OTTER	BACOMA	43.364	3.615				0.042	9.882	4.264	67.571	9.917	45.331	3.124	18.374	0.899	8.788	0.437	2.036	0.039	1.443	0.022						
Bal	B	PLE	2009	r-OTTER	BACOMA	45.028	71.209				0.384	1.451	58.87	29.036	186.532	100.048	141.535	15.736	18.886	3.003	3.23	1.233	1.742	0.731	1.29	0.176		0.038		0.038	
Bal	B	PLE	2009	r-OTTER	none	0.054	0.285						0.1		0.78		0.56		0.06		0.01										
Bal	B	PLE	2010	r-OTTER	BACOMA	23.777	34.02				2.139	3.103	22.86	34.582	43.891	46.57	50.43	9.903	16.173	1.964	4.174	0.899	1.595	0.245	0.663	0.306	0.398	0.086	0.092		
Bal	B	PLE	2011	r-OTTER	BACOMA	3.878	27.542				9.539	1.948	47.492	6.071	43.867	4.074	28.004	1.232	13.195	0.196	1.017	0.06		0.158		0.075		0.015			
Bal	B	PLE	2011	r-OTTER	none	0.021	0.87				0.43		4.27		1.26		0.45		0.12		0.02										
Bal	B	SPR	2003	PEL_TRAWL	none	97219.864		135436.039		2425580.055		2145986.498		1057345.132		2558003.122		195185.664		1455958.651		227601.497		816668.032							
Bal	B	SPR	2004	PEL_TRAWL	none	198018.528		3482.836		2972547.721		7052836.514		3412684.809		1752997.524		4290967.354		348748.073		2027783.206		1579827.744							
Bal	B	SPR	2005	PEL_TRAWL	none	195796.709		80690.748		272393.028		18159838.52		5102444.686		1600959.44		618636.336		463907.871		325746.524		417729.144							
Bal	B	SPR	2006	PEL_TRAWL	none	168592.625		5914.521		1197625.161		3911875.998		1344513.44		2340450.841		541566.796		167685.567		186146.38		223065.571							
Bal	B	SPR	2007	PEL_TRAWL	none	171427.104		31311.685		3124120.355		5689340.121		1128932.63		9429845.13		2131081.31		363914.073		149442.905		245268.019		347.148					
Bal	B	SPR	2008	PEL_TRAWL	none	44507.497		688246.651		1010916.364		1973455.075		571360.201		154423.671		444151.771		123027.431		26802.38		12102.394							
Bal	B	SPR	2009	OTTER	none	14919.464				501622.815		194302.837		408094.64		84946.715		98776.391		35304.136		14045.476		2671.762		4331.13					
Bal	B	SPR	2009	PEL_TRAWL	none	216007.337	0	45486.268		10212518.95		5510371.783		5515136.904		1779981.875		529564.231		170571.019		45118.823		18192.437		1969.374					
Bal	B	SPR	2010	PEL_TRAWL	none	179776.418	0	557614.29		971956.67		12156757.99		2974568.218		2805915.703		991027		382187.575		741351.892		352966.7		30534.073					
Bal	B	SPR	2011	PEL_TRAWL	NONE	56313.617	3	8051.038		1334058.218		1768473.417		2615624.25		488158.174		193311.1		47389.396		40378.353		21839.42		1671.079		1442.261			
Bal	B	WHG	2009	r-OTTER	none	0.005	0.05						0.01		0.09		0.03														
Bal	B	WHG	2011	r-OTTER	none	0	0.253						0.03		0.29		0.13														
Bal	C	HER	2003	POTS	none	4024.78	6.82			117.721		5156.167		1224.295		12811.021		1016.41		574.664		5141.879		3285.933		56665.216		6107.54		2641.123	
Bal	C	HER	2004	POTS	none	4059.558	2.87			4		13265.416		28947.838		15220.693		14153.673		12254		14167.62		17243.603		2727.603		2908		1236	
Bal	C	HER	2005	POTS	none	2358.58	0.267	538.457				6591.589		26089.123		12887.929		24538.808		2923.479		8211.963		2195.862		999.848		525.446		834.708	
Bal	C	HER	2006	POTS	none	2288.609	0.149					1639		2205		24727		15086		7502		6196		8034		1387		1546		3077	
Bal	C	HER	2007	POTS	none	2818.022	6.229					19351.51		25250.319		9670.4		36419.625		14283.964		4515.504		2850.952		3395.313		378.383		736.496	
Bal	C	HER	2008	POTS	none	2850.587	0.385	76.664		689.976		1891.044		1950.672		545.166		289.619		16306.127		8288.51		18001.323		22735.06		2443.11		1017.963	
Bal	C	HER	2009	PEL_TRAWL	none	18433.788	0	531.559		83356.316		257725.393		82854.027		246088.437		52813.431		21476.799		114006.541		9636.882		12804.371		7498.279			
Bal	C	HER	2009	POTS	none	2256.818	1.358			72.257		17141.177		24527.373		21235.881		3890.66		1398.919		7393.071		4094.467		4875.689		651.973		1998.742	
Bal	C	HER	2010	PEL_TRAWL	none	19152.109	0	6181.857		39490.168		110323.795		289145.333		59279.99		216346.185		59780.051		10768.354		50224.216		2329.127		17894.706			
Bal	C	HER	2011	PEL_TRAWL	NONE	19311.112	0	156477.091		80823.449		120424.486		212705.108		258199.044		78327.559		75062.245		22621.792		9939.73		18717.619		5606.967			
Bal	C	SPR	2007	PEL_TRAWL	none	63891.478		218847.558		2871300.831		2798726.237		232442.653		2290284.261		515979.365		44353.288		43608.768		51981.226							
Bal	C	SPR	2008	PEL_TRAWL	none	68107.162		440400.639		2175450.651		3310869.717		766450.472		283811.764		1135430.179		496389.623		32414.601		78325.287							
Bal	C	SPR	2009	PEL_TRAWL	none	75061.933	0	215573.8		3718705.352		1803332.51		1791639.424		627252.564		316109.175		1013281.358		236083.716		217912.143		171.344					
Bal	C	SPR	2010	PEL_TRAWL	none	66389.128	0	164016.846		269792.69	3	4906884.894		1563974.321		1105092.428		375204.78		218697.178		325517.126		174539.428							
Bal	C	SPR	2011	PEL_TRAWL	NONE	39201.708	0	365955.754		1655729.221		393554.313		1823273.502		483881.715		176433.966		116431.55		55949.286		111674.847							

5.1.5 ToR 1.e CPUE and LPUE of cod by area, fisheries and Member State

Although it was explicitly asked to analyse CPUE and LPUE time series of Baltic cod for gear categories which are in accordance with Council Regulation (EC) 2187/2005 only, the STECF EWG used the categories from the cod management plan to be consistent within the report and to provide respective advice.

The Tables 5.1.5.1, 5.1.5.2 and Figures 5.1.5.1-5.1.5.2 provide data on CPUE and LPUE by year and derogation as well as aggregated over countries. The CPUE figures in the table should only be considered indicative since estimated discard ratios depend on sampling intensity.

CPUEs and LPUEs were in general higher for otter trawls, demersal seines and pelagic trawls compared to gill nets. CPUES and LPUES varied considerably between countries. CPUE and LPUE aggregated over countries and years showed a generally increasing trend in Areas A -C, although CPUEs and LPUEs showed some inter-annual variability. In area B CPUEs and LPUEs decreased somewhat in 2011. The relatively strong increase in CPUE and LPUE values in Areas B and C in the most recent years can be explained by the dynamics of Eastern Baltic cod stock (ICES, 2012;Tables 3.4.2.1 and 3.4.2.2).

The updated information on CPUE and LPUE by area, gear and Member States, made available to EWG during its follow-up meeting in September 2012 can be found on STECF website in the Appendix 4 (http://stecf.jrc.ec.europa.eu/web/stecf/ewg12). Analysis of CPUE and LPUE data broken down by area, gear and Member State revealed that the temporal dynamics of respective CPUE and LPUE values was rather similar. Below only the CPUE values from Baltic cod fishery by country and effort-regulated gears are considered.

Gillnet fishery (R- GILL) CPUE (g/kW*days) of cod in r-gill gear fisheries by Member States, areas combined (Figure 5.1.5.3): In general, the cod CPUE values in the effort-regulated gillnet fishery did not reveal any clear trend in most of the Member States and fluctuated around 5900 (DNK), 4200 (SWE) and 2700 g/kW*days (DEU) average values respectively during the period. The POL CPUE index has increased from 2606 g/kW*days in 2004 up to 7375 g/kW*days in 2011. The CPUE index of LAT exceeded the values of the rest of Member States in 2004-2011 (average CPUE index value 10200 g/kW*days, peaking at 15339 g/kW*days in 2010).

Effort-regulated otter-trawl fishery (R-OTTER) CPUE (g/kW*days) of cod in r-otter gear fisheries by Member States, areas combined (Figure 5.1.5.4): The overall CPUE trend in effort-regulated otter trawl fishery has been increasing. The CPUE index of DNK increased 2.3 times from 7155 up to 16273 g/kW*days in 2004-2010, decreasing to 14019 g/kW*days in 2011. The DEU CPUE index was also increasing reaching maximum value of 28063 g/kW*days in 2008 but then decreased to the level of 2006-2007. The LVA CPUE index was fluctuating significantly over the period, reaching 27408 g/kW*days in 2010 but decreasing dramatically by 3.5 times to 7810 g/kW*days in 2011. The SWE CPUE index has increased significantly in 2009 compared to the values of 2004-2008, peaking at 29667 g/kW*days value in 2010. The SWE CPUE index values were the biggest comparing with others Member States in 2009-2011. The POL CPUE increased by almost 10 times since 2004 until 2011. Particularly big increase was observed in 2010-2011.

Analyses of Cod CPUE by country have shown (FigureS 5.1.5.3 and 5.1.5.4) that overall average CPUE of r-otter trawl fisheries has been almost twice bigger than that of r-gillnet fisheries CPUE in 2004-2011 period. The maximum value of overall average of r-otter fisheries CPUE was reached in 2009 and that of r-gillnet fisheries in 2010 but decreased in following years. From 2004, the overall average of r-gill fisheries CPUE increased 1.7 times from 4266 value up to 7419 value in 2009. From 2004 the overall average of r-otter trawl fisheries CPUE increased 2.9 times from 5796 g/kW*days up to 17009 g/kW*days value in 2010.

Analyses of CPUE dynamics by areas A and B (Figure 5.1.5.5.) show that CPUE (g/kW*days) of cod in r-otter gear fisheries in area B was 1.7 times higher at average than in area A. It also can indicate at recently increased stock abundance causing the higher fishing efficiency in area B compared to the area A in 2004-2011.

Table 5.1.5.1 Baltic: Cod CPUE (g/KW*days) by derogation, and year, 2004-2011 for areas A, B, C and 28.2.

REG AREA COD	REG GEAR COD	SPECON	CPUE 2004	CPUE 2005	CPUE 2006	CPUE 2007	CPUE 2008	CPUE 2009	CPUE 2010	CPUE 2011	CPUE 2009-2011
28.2	GILL	none	0	0	0	0	0	0	0	0	0
28.2	OTTER	none		0	0		0	0	0	0	0
28.2	PEL_TRAWL	none	13	2	3	7	3	0	1	2	1
28.2	r-GILL	none	1912	2481	1740	2087	2542	2549	1594	2044	1995
28.2	r-OTTER	BACOMA	1966	2330	2620	1559	1674	6131	2467	1109	2826
28.2	r-PEL_TRAWL	BACOMA	0				0	0	0	0	0
A	BEAM	none	0					0	2262	3394	277
A	DEM_SEINE	none	0	0	348	0		0	0	0	0
A	DREDGE	none						0	0	0	0
A	GILL	none	124	322	213	202	46	26	26	24	26
A	none	none	31881	2896	4472	804	442	185	463	526	334
A	OTTER	none	92	200	235	152	183	121	237	230	187
A	PEL_TRAWL	none	88	177	197	148	98	63	102	104	85
A	POTS	none	28	1175	384	716	306	287	470	316	359
A	r-BEAM	BACOMA	0	0	0	0	2327	0	0	0	0
A	r-BEAM	none	0	0	0	0	0	0	0	0	0
A	r-DEM_SEINE	BACOMA	0	0	2177	3789	6510	4583	5354	5077	4800
A	r-DEM_SEINE	none	3496	4297	5555	6551	6731	4963	5115	7058	5449
A	r-GILL	none	1766	1768	1798	1877	1800	1613	1755	1810	1718
A	r-LONGLINE	none	2035	2240	1793	2496	1727	1454	1894	2458	1909
A	r-OTTER	BACOMA	2544	1721	3320	3337	2923	3024	3263	4292	3526
A	r-OTTER	none	2499	2632	3069	3707	3212	3628	3721	4884	4024
A	r-OTTER	T90	0	0	0	0	0	0	2195	5229	4158
A	r-PEL_TRAWL	BACOMA	1568	904	3305	5758	1441	0	3333	2992	3107
A	r-PEL_TRAWL	none	1872	2929	3658	2882	2473	8382	4240	0	5017
A	r-TRAMMEL	none	1183	1198	1388	1194	1125	706	1035	1273	971
A	TRAMMEL	none	1566	1283	669	1278	470	0	396	0	93
B	DEM_SEINE	none			0			0	0	90	55
B	DREDGE	none	0	0	0	0	4525	0	0	0	0
B	GILL	none	246	185	385	339	57	19	14	89	50
B	none	none	114172	2956	5891	1096	1038	323	470	3145	1237
B	OTTER	none	81	103	65	33	31	44	15	70	41
B	PEL_TRAWL	none	44	26	25	37	36	48	56	33	45
B	POTS	none	0	0	3	0	5	85	52	18	55
B	r-DEM_SEINE	BACOMA	0	0	5699	6444	12079	17195	8659	9448	10990
B	r-DEM_SEINE	none	588	10313	8384	10046	0	0	0	11341	11341
B	r-GILL	none	1652	1793	1992	1975	2765	4045	4227	3652	3991
B	r-LONGLINE	none	2989	2699	2934	2977	3095	1929	3348	2682	2638
B	r-OTTER	BACOMA	1818	1958	2532	3311	4128	7505	7791	6905	7383
B	r-OTTER	none	3545	3509	4843	7918	8473	10872	10722	8719	9908
B	r-OTTER	T90	0	0	0	0	0	9333	6952	5661	6218
B	r-PEL_TRAWL	BACOMA	1767	1240	2689	3209	1423	6480	8630	3995	5181
B	r-PEL_TRAWL	none	8421	4932	13942	67132	13861	12358	12830	2316	7496
B	r-TRAMMEL	none	880	439	473	2422	2579	3979	2660	952	3486
B	TRAMMEL	none	0	0	0	44	0	0	0	0	0
C	GILL	none	0	1	0	0	0	0	1	1	1
C	OTTER	none	0	0	14			0	0	0	0
C	PEL_TRAWL	none						0	0	0	0
C	POTS	none	0	0				0	0	0	0
C	r-GILL	none	133	107	104	161	213	556	585	1079	724
C	r-LONGLINE	none	0	0	0	0	0	0	0	0	0
C	r-OTTER	BACOMA	0	0	0	0	463	0	0	0	0

Table 5.1.5.2 Baltic: Cod LPUE (g/KW*days) by derogation and year, 2003-2011 for areas A, B, C and 28.2

REG AREA COD	REG GEAR COD	SPECON	LPUE 2004	LPUE 2005	LPUE 2006	LPUE 2007	LPUE 2008	LPUE 2009	LPUE 2010	LPUE 2011	LPUE 2009-2011
28.2	GILL	none	0	0	0	0	0	0	0	0	0
28.2	OTTER	none		0	0		0	0	0	0	0
28.2	PEL_TRAWL	none	13	2	3	7	3	0	1	2	1
28.2	r-GILL	none	1912	2432	1702	1953	2480	2549	1594	2044	1995
28.2	r-OTTER	BACOMA	1955	2330	2620	1559	1674	6131	2467	1109	2826
28.2	r-PEL_TRAWL	BACOMA	0				0	0	0	0	0
A	BEAM	none	0					0	2262	3394	277
A	DEM_SEINE	none	0	0	348	0		0	0	0	0
A	DREDGE	none						0	0	0	0
A	GILL	none	124	317	213	202	46	26	26	24	26
A	none	none	31881	2896	4472	804	442	185	463	526	334
A	OTTER	none	92	200	235	152	183	121	93	230	142
A	PEL_TRAWL	none	87	177	197	148	98	63	102	84	80
A	POTS	none	28	1175	384	716	306	287	470	316	359
A	r-BEAM	BACOMA	0	0	0	0	2327	0	0	0	0
A	r-BEAM	none	0	0	0	0	0	0	0	0	0
A	r-DEM_SEINE	BACOMA	0	0	2177	3789	6510	4583	5354	5077	4800
A	r-DEM_SEINE	none	3294	4029	5302	5977	6720	4888	5050	6822	5344
A	r-GILL	none	1741	1698	1798	1877	1799	1512	1712	1786	1659
A	r-LONGLINE	none	2022	2140	1793	2496	1727	1449	1894	2441	1902
A	r-OTTER	BACOMA	2400	1718	3120	3121	2749	2724	2723	3524	2995
A	r-OTTER	none	2429	2524	3067	3702	3205	3622	3711	4884	4018
A	r-OTTER	T90	0	0	0	0	0	0	2016	3641	3067
A	r-PEL_TRAWL	BACOMA	1568	904	3305	5758	1441	0	3333	2472	2762
A	r-PEL_TRAWL	none	1872	2929	3658	2882	2473	8382	4240	0	5017
A	r-TRAMMEL	none	1170	1157	1388	1194	1125	670	1033	1266	954
A	TRAMMEL	none	1566	1283	669	1278	470	0	396	0	93
B	DEM_SEINE	none			0			0	0	90	55
B	DREDGE	none	0	0	0	0	4525	0	0	0	0
B	GILL	none	246	185	385	339	57	19	14	89	50
B	none	none	114172	2956	5891	1096	1038	323	470	3145	1237
B	OTTER	none	81	103	65	33	31	40	15	66	39
B	PEL_TRAWL	none	44	26	25	37	36	44	32	31	36
B	POTS	none	0	0	3	0	5	85	52	18	55
B	r-DEM_SEINE	BACOMA	0	0	5699	6444	12079	17195	8659	9448	10990
B	r-DEM_SEINE	none	588	10313	8384	10046	0	0	0	11341	11341
B	r-GILL	none	1604	1739	1921	1829	2676	3892	3872	3502	3772
B	r-LONGLINE	none	2953	2657	2934	2977	3088	1800	2965	2599	2438
B	r-OTTER	BACOMA	1722	1787	2176	2783	3795	6740	7093	6123	6635
B	r-OTTER	none	3467	3421	4575	7728	8289	10639	10453	8711	9758
B	r-OTTER	T90	0	0	0	0	0	8075	6410	4855	5496
B	r-PEL_TRAWL	BACOMA	1719	1240	2323	2917	1289	5961	8364	3359	4621
B	r-PEL_TRAWL	none	8313	4757	13942	67132	13861	12358	12830	2316	7496
B	r-TRAMMEL	none	880	439	473	2422	2579	3979	2660	952	3486
B	TRAMMEL	none	0	0	0	44	0	0	0	0	0
C	GILL	none	0	1	0	0	0	0	1	1	1
C	OTTER	none	0	0	14			0	0	0	0
C	PEL_TRAWL	none						0	0	0	0
C	POTS	none	0	0				0	0	0	0
C	r-GILL	none	133	107	104	161	213	541	571	1028	698
C	r-LONGLINE	none	0	0	0	0	0	0	0	0	0
C	r-OTTER	BACOMA	0	0	0	0	463	0	0	0	0

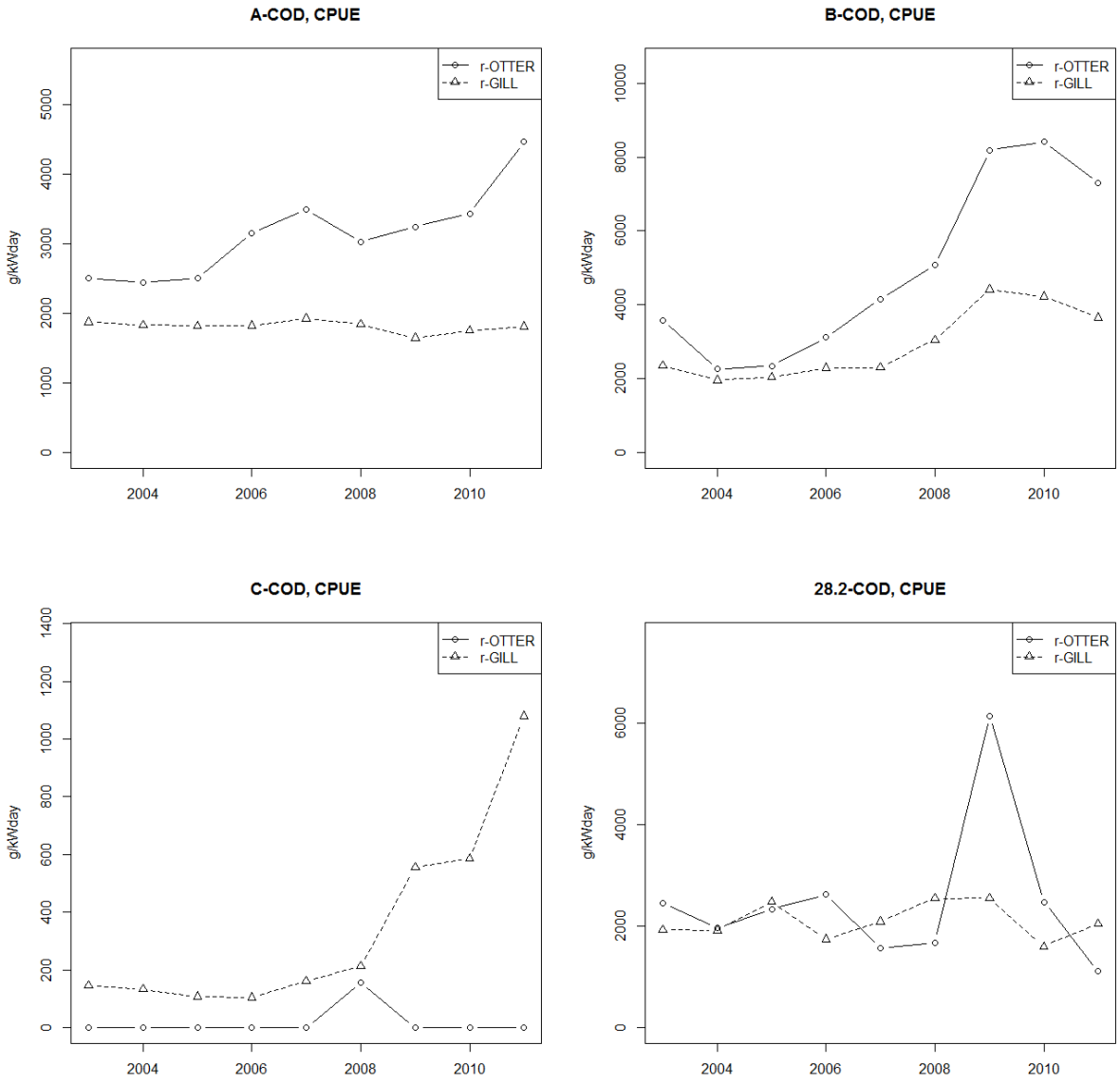

Figure 5.1.5.1 Cod CPUE (g/KW*days) by derogation, country and year, 2003-2011 for areas A, B, C and 28.2.

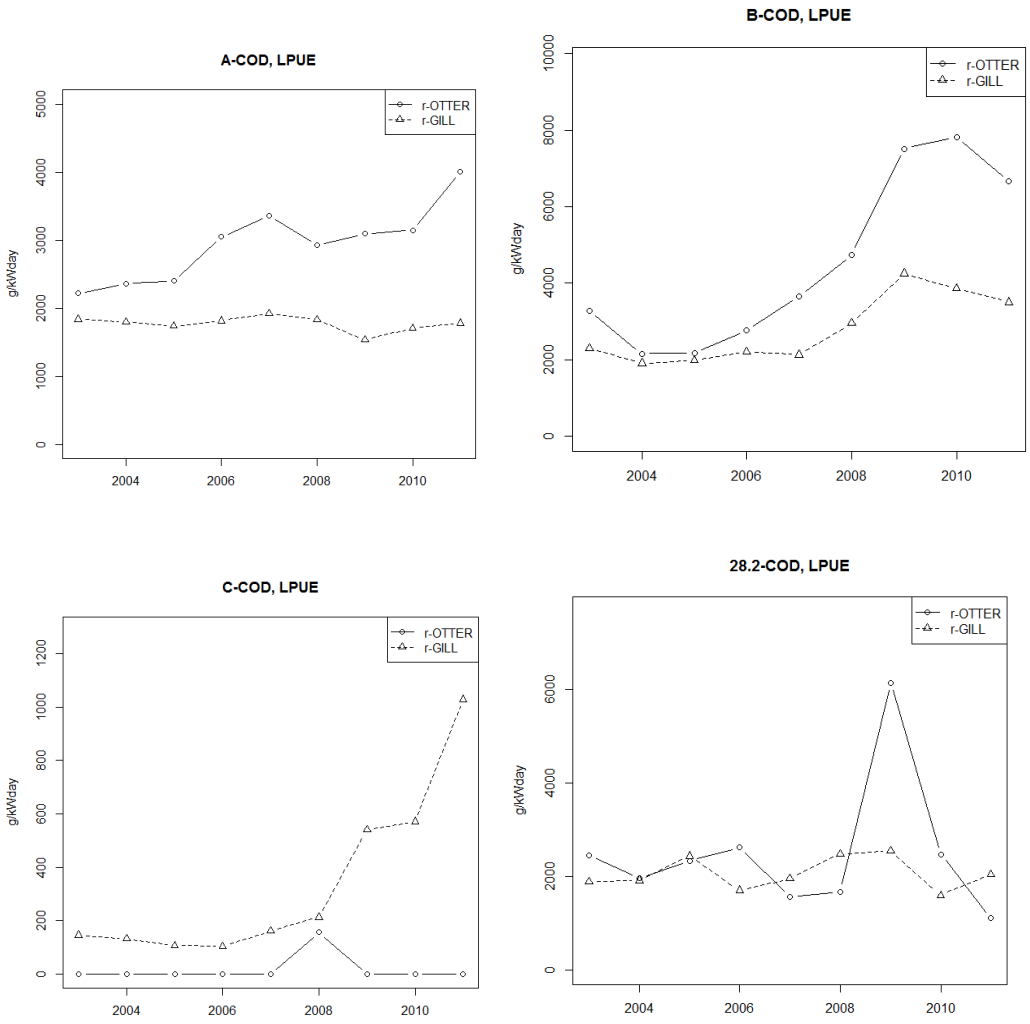

Figure 5.1.5.2 Cod LPUE (g/KW*days) by derogation, country and year, 2003-2011 for areas A, B, C and 28.2.

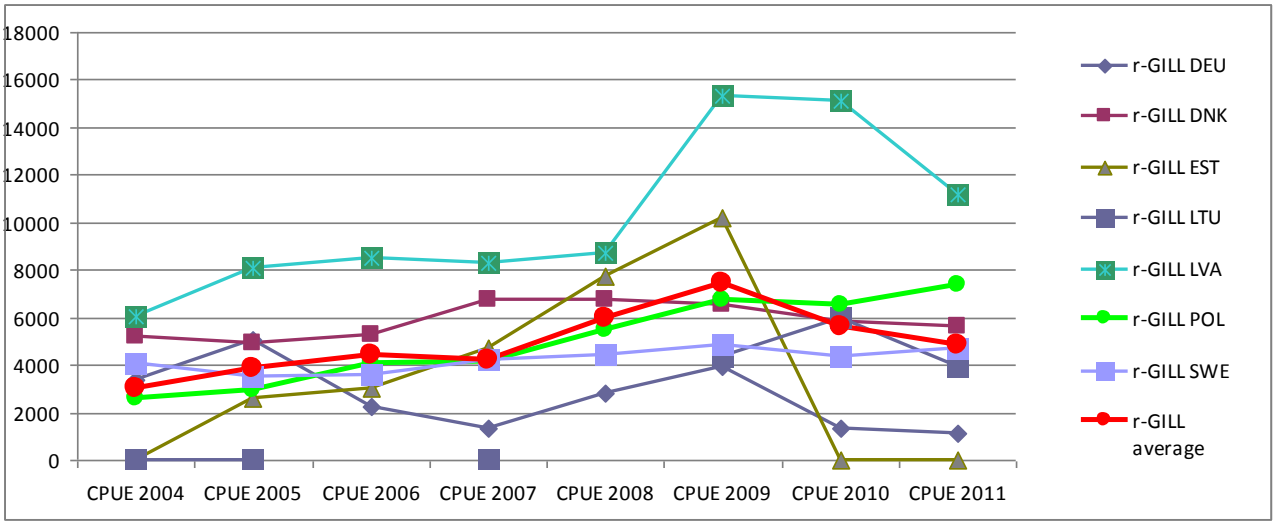

Figure 5.1.5.3 CPUE (g/kW*days) of cod in r-gill gear fisheries by Member States, 2004-2011.

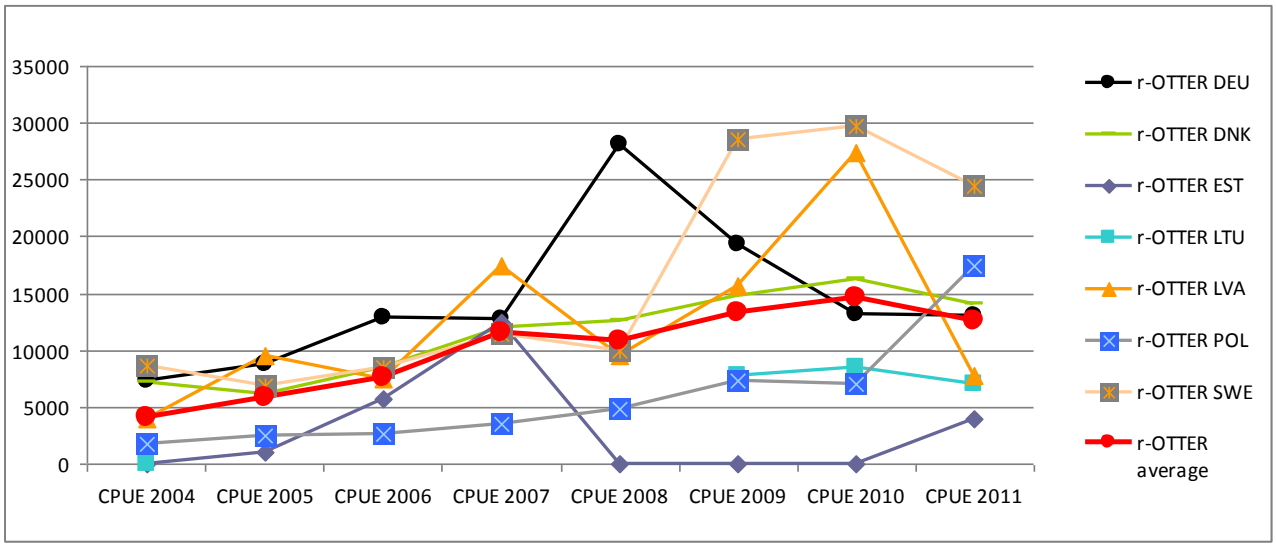

Figure 5.1.5.4 CPUE (g/kW*days) of cod in r-otter gear fisheries by Member States, 2004-2011.

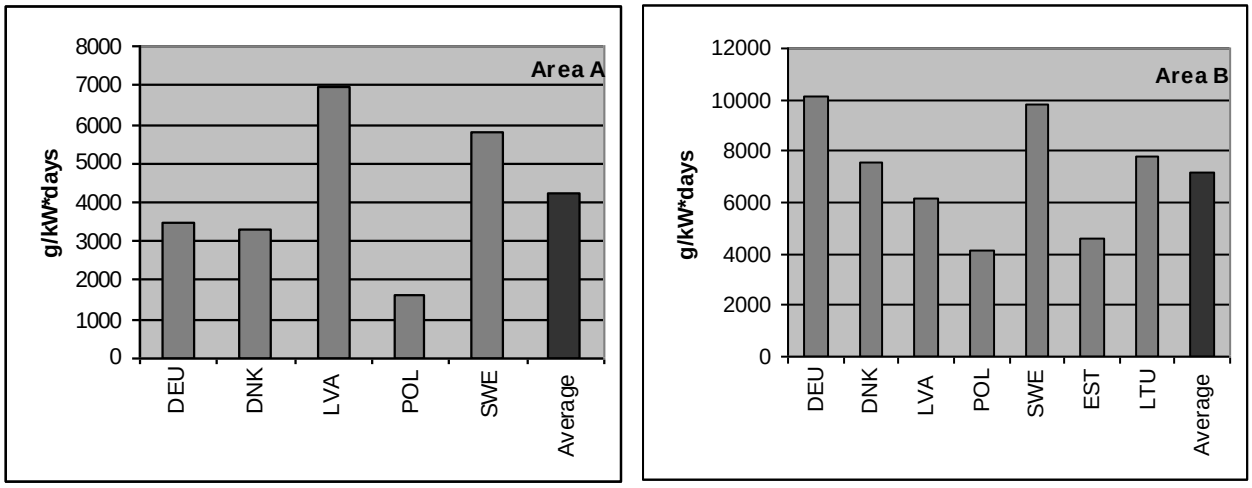

Figure 5.1.5.5. Average CPUE (g/kW*days) of cod in r-otter trawl fisheries by Member States in area A and area B. in 2004-2011.

Ranked gear categories according to catches and landings of cod by sub-area can be found in Tables 5.1.5.3 and 5.1.5.4.

There are some differences in the dominating gear that are responsible for the cod catches. Throughout the period of observations the otter trawl fishery was dominant in Areas A and B with gillnet fishery as the second most important cod catching gear. In area C, gillnets were the major gears although the total amount of cod catches was low compared to areas A and B. The variation in the dominance of certain gear types between years is limited in Areas A and B. However, in areas C larger shifts occurred. In the Sub-area 28.2, only trawls and gillnets were involved in cod fishery during the period (except minor catch by pelagic trawls in 2003). The proportion between gears had been changing on annual basis without clear trend. According to available data, cod catches from unregulated gear types do not play a significant role.

Table 5.1.5.3 Ranked gear categories according to the proportional catches of cod 2003-2011, ascending ranking according to 2011.

ANNEX	REG_AREA	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	28.2	r-PEL_TRAWL	0.030								
Bal	28.2	r-GILL	0.674	0.298	0.441	0.354	0.537	0.418	0.244	0.755	0.468
Bal	28.2	r-OTTER	0.296	0.702	0.559	0.646	0.463	0.582	0.756	0.245	0.532

ANNEX	REG_AREA	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	A	r-BEAM	0.000					0.000			
Bal	A	r-PEL_TRAWL	0.005	0.002	0.006	0.008	0.009	0.001	0.002	0.003	0.001
Bal	A	r-DEM_SEINE	0.071	0.075	0.050	0.065	0.069	0.079	0.052	0.040	0.026
Bal	A	r-LONGLINE	0.020	0.026	0.056	0.033	0.031	0.015	0.020	0.024	0.028
Bal	A	r-TRAMMEL	0.015	0.014	0.024	0.026	0.024	0.032	0.028	0.036	0.034
Bal	A	r-GILL	0.201	0.208	0.278	0.278	0.244	0.291	0.263	0.282	0.226
Bal	A	r-OTTER	0.689	0.676	0.586	0.590	0.624	0.581	0.635	0.615	0.684

ANNEX	REG_AREA	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	B	r-TRAMMEL	0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.000
Bal	B	r-DEM_SEINE	0.000	0.000	0.003	0.004	0.003	0.003	0.008	0.005	0.010
Bal	B	r-LONGLINE	0.054	0.093	0.106	0.090	0.060	0.054	0.033	0.047	0.037
Bal	B	r-PEL_TRAWL	0.008	0.105	0.052	0.138	0.208	0.038	0.062	0.037	0.087
Bal	B	r-GILL	0.343	0.324	0.292	0.200	0.192	0.249	0.229	0.180	0.143
Bal	B	r-OTTER	0.595	0.478	0.547	0.568	0.536	0.655	0.665	0.730	0.723

ANNEX	REG_AREA	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	C	r-OTTER						0.063			
Bal	C	r-LONGLINE						0			
Bal	C	r-GILL	1	1	1	1	1	0.938	1	1	1

Table 5.1.5.4 Ranked gear categories according to the proportional landings of cod 2003-2011, ascending ranking according to 2011.

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	28.2	COD	r-PEL_TRAWL	0.030								
Bal	28.2	COD	r-GILL	0.670	0.300	0.436	0.349	0.520	0.406	0.244	0.755	0.468
Bal	28.2	COD	r-OTTER	0.299	0.700	0.564	0.651	0.480	0.594	0.756	0.245	0.532

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	A	COD	r-BEAM	0.000					0.000			
Bal	A	COD	r-PEL_TRAWL	0.005	0.002	0.006	0.008	0.009	0.001	0.002	0.003	0.001
Bal	A	COD	r-DEM_SEINE	0.073	0.072	0.049	0.063	0.066	0.080	0.054	0.042	0.027
Bal	A	COD	r-LONGLINE	0.021	0.026	0.056	0.034	0.032	0.016	0.021	0.025	0.030
Bal	A	COD	r-TRAMMEL	0.016	0.015	0.024	0.027	0.024	0.033	0.028	0.039	0.037
Bal	A	COD	r-GILL	0.216	0.210	0.278	0.284	0.251	0.297	0.259	0.292	0.240
Bal	A	COD	r-OTTER	0.668	0.674	0.587	0.584	0.619	0.574	0.636	0.600	0.664

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	B	COD	r-TRAMMEL	0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.000
Bal	B	COD	r-DEM_SEINE	0.000	0.000	0.003	0.004	0.003	0.003	0.009	0.005	0.011
Bal	B	COD	r-LONGLINE	0.056	0.096	0.109	0.099	0.066	0.057	0.033	0.045	0.039
Bal	B	COD	r-PEL_TRAWL	0.008	0.106	0.054	0.136	0.214	0.036	0.062	0.039	0.080
Bal	B	COD	r-GILL	0.357	0.325	0.298	0.211	0.196	0.255	0.237	0.179	0.150
Bal	B	COD	r-OTTER	0.578	0.473	0.536	0.550	0.520	0.647	0.657	0.732	0.721

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
Bal	C	COD	r-LONGLINE						0			
Bal	C	COD	r-OTTER						0.063			
Bal	C	COD	r-GILL	1	1	1	1	1	0.938	1	1	1

5.1.6 ToR 2 Remarks on quality of catches and discard estimates

Discard estimates were available from all Baltic Member States except for Finland. This country, however has landed small quantities of the eastern cod stock (approximately 1% of the total landings). It seems that the sampling intensity, particularly in passive gears, was generally lower as compared to active gears. This might imply that even if all major métiers were sampled, the discard estimate is an underestimate compared to the real discard. Therefore, variation in discard figures from year to year must be taken with caution and may not reflect the true exploitation pattern of the fishery. The EU Data Collection Framework (DCF) defines which metiers (Level 6) are to be sampled in a country following the rules of the fisheries metiers ranking system. The sampling strata includes also Baltic ICES Sub-divisions (not ICES rectangles) and months. Independently of the uncertainties in the discard estimates available to the STECF EWG, the changes in discard level reflect relatively well the year-classes strength of the eastern Baltic cod stock, which is in particular evident for the active gears (see Figure 5.1.3.1). Also discard ratio estimates for the Member States for the same year and fishing gears are close and follow the same trends across years studied.

5.1.7 ToR 3 Information on small boats (<8m by area)

Fishing effort and catches of cod corresponding to vessels of length overall smaller than 8 m by gear and Member State are provided

Lithuania provided data from 2006; Latvia provided data from 2009; both until 2011. Estonia did not provide effort data for this fleet segment at all.

5.1.7.1 Fishing effort of small boats by area, Member State and fisheries

According to provided information (Table 5.1.7.1.1), the biggest fishing effort was deployed by Finland, Sweden and Poland (97% on average comparing with total fishing effort in that fleet segment) (Figure 5.1.7.1.1).

The most of effort was distributed between non regulated gill nets (45%), pots (34%) and regulated gill nets (17%) (Figure 5.1.7.1.2). Only 4% of fishing effort was deployed by other types of fishing gears .

The biggest fishing effort was deployed in the area C (67% in average comparing with total fishing effort); the lowest in the area A (5% in average comparing with total fishing effort) (Figure 5.1.7.1.3?). 28% of fishing effort was deployed in area B. Fishing effort in the Sub-division 28.2 consisted 1% of all fishing efforts in the area B only. Dynamics of fishing efforts in areas A, B, C has shown that from 2004 fishing effort in the area B significantly decreased; in the area C fishing efforts fluctuated around its average; in the area A fishing effort increased from 2010.

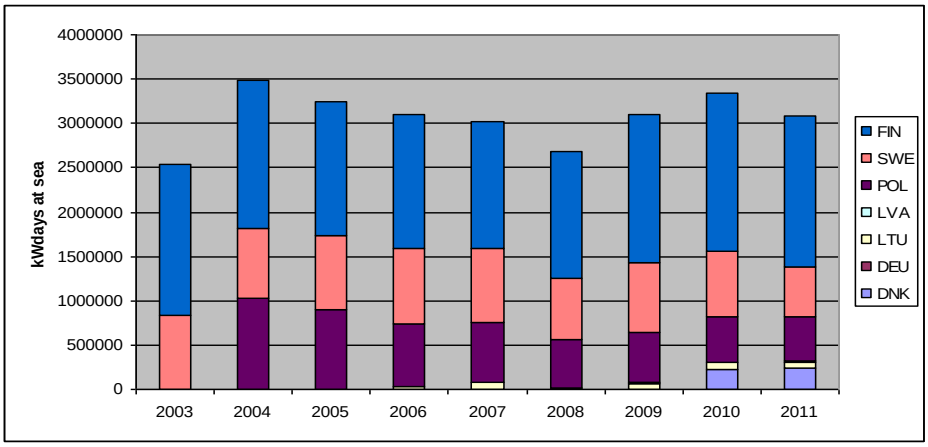

Figure 5.1.7.1.1 Distribution of fishing effort (kW days at sea) by Member States in 2003 – 2011.

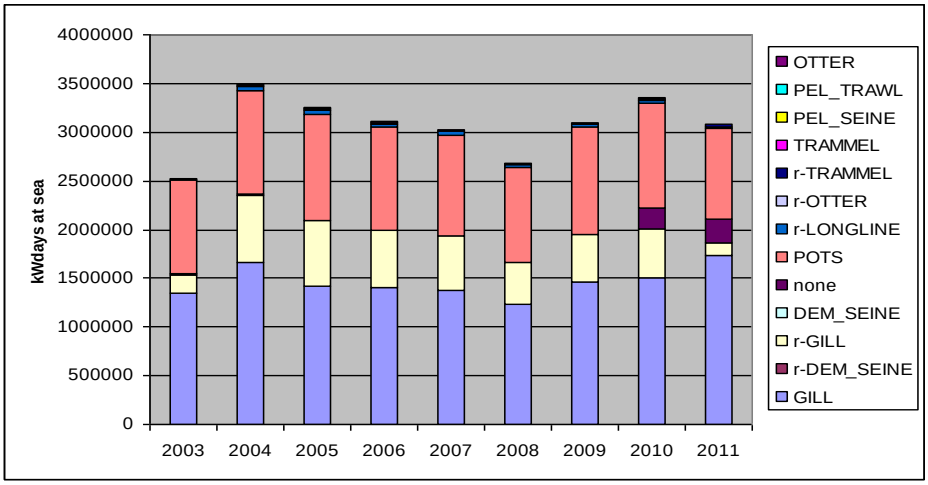

Figure 5.1.7.1.2 Distribution of fishing effort (kW days at sea) by different fishing gears in 2003 – 2011.

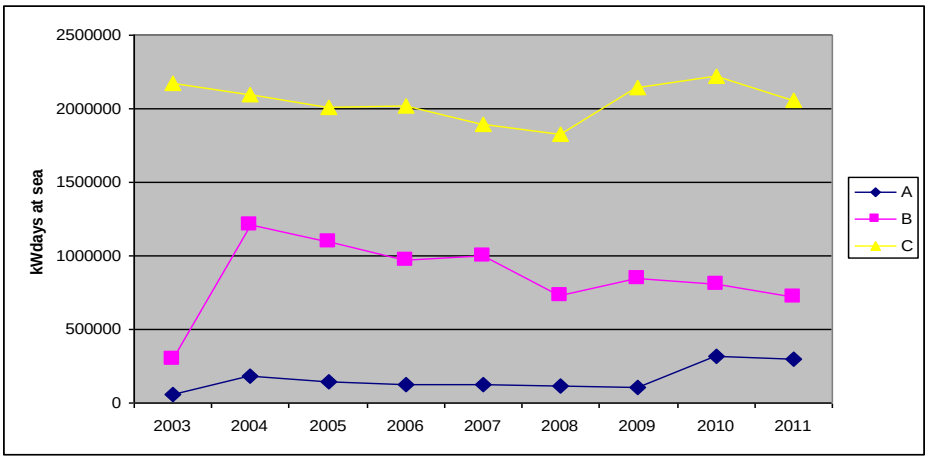

Figure 5.1.7.1.3. Dynamics of fishing effort (kW days at sea) in areas A, B, C.

Table 5.1.7.1.1 Fishing effort (kWdays at sea) of small boats by area, Member State and fisheries.

REG AREA COD	REG GEAR COD	SPECON	COUNTRY	VESSEL_	2003	2004	2005	2006	2007	2008	2009	2010	2011
28.2	GILL	none	LVA	u8m							2460	1024	
28.2	r-DEM_SEINE	none	LVA	u8m							46	36	
28.2	r-GILL	none	LVA	u8m							7387	5022	6518
A	DEM_SEINE	none	POL	u8m		1925	1035						
A	DEM_SEINE	none	SWE	u8m			16						
A	GILL	none	POL	u8m		70644	49864	34033	43230	35850	21984	35190	41160
A	GILL	none	SWE	u8m	2871	6271	383	885			1353	485	313
A	none	none	DNK	u8m	482	699	1348	1117	1597	653	1221	195335	208188
A	none	none	SWE	u8m	22	74	2813	2052	2659	2739	110	706	
A	POTS	none	POL	u8m		26730	20268	14502	15888	25323	21954	20576	12497
A	POTS	none	SWE	u8m	28974	23886	25365	28788	23451	12845	23090	29839	8425
A	r-GILL	none	DEU	u8m									192
A	r-GILL	none	POL	u8m		26014	19941	15700	18809	17544	15584	9865	
A	r-GILL	none	SWE	u8m	24692	13884	15332	16650	15614	15720	7406	13074	15376
A	r-LONGLINE	none	POL	u8m		658			29	97	753	102	173
A	r-LONGLINE	none	SWE	u8m		2522	392						
A	r-OTTER	none	POL	u8m						21			
A	r-TRAMMEL	none	POL	u8m				114	119				
A	r-TRAMMEL	none	SWE	u8m	3672	8118	10053	8683	7146	7657	7687	14540	9764
A	TRAMMEL	none	POL	u8m		3058	2708	2243	5295	1367	971	112	
B	DEM_SEINE	none	POL	u8m		3111	959	31		59		82	1098
B	DEM_SEINE	none	SWE	u8m						44			
B	GILL	none	LTU	u8m							34504	30277	16793
B	GILL	none	LVA	u8m							844	462	720
B	GILL	none	POL	u8m		145108	109011	72210	71172	60146	51258	50365	402402
B	GILL	none	SWE	u8m	11760	17940	17036	18779	21529	17550	27674	31454	28688
B	none	none	DNK	u8m							0	26845	26008
B	none	none	SWE	u8m	61	9		1014	4495	1100	1109	998	
B	PEL_SEINE	NONE	POL	u8m									22
B	PEL_TRAWL	none	POL	u8m			59						
B	POTS	NONE	LTU	u8m									5018
B	POTS	none	POL	u8m		124796	107603	69044	59160	46887	44134	69259	30576
B	POTS	none	SWE	u8m	152174	138253	149638	180982	205254	137653	162669	129568	85842
B	r-DEM_SEINE	none	LVA	u8m									
B	r-GILL	none	LTU	u10m				30799	67068	16778			
B	r-GILL	none	LTU	u8m							28808	42127	42080
B	r-GILL	none	LVA	u8m							1078	1979	3266
B	r-GILL	none	POL	u8m		613889	572660	483645	447619	343626	398418	322538	22
B	r-GILL	none	SWE	u8m	118038	111340	86034	71269	79583	81410	68069	61424	42923
B	r-LONGLINE	none	LTU	u10m				1966	10496	132			
B	r-LONGLINE	none	LTU	u8m							2170	3787	7999
B	r-LONGLINE	none	POL	u8m		30606	27836	21358	19258	12029	14925	13281	9063
B	r-LONGLINE	none	SWE	u8m	6965	12481	15858	8229	8089	6978	6209	5882	3589
B	r-TRAMMEL	none	POL	u8m		77							
B	r-TRAMMEL	none	SWE	u8m	1423	3881	3238	3931	3740	3410	1530	11884	10915
B	TRAMMEL	none	POL	u8m		119			37	31			
B	TRAMMEL	none	SWE	u8m	6098	6999	3406	11500	5455	4858	5238	5030	5433
C	DEM_SEINE	none	SWE	u8m	1827	824			526				
C	GILL	none	FIN	u8m	1168557	1152304	1000201	1033994	957521	888768	1057622	1188962	1101469
C	GILL	NONE	POL	u8m									102
C	GILL	none	SWE	u8m	165644	160268	173471	166700	168797	154373	185927	169655	139908
C	none	none	SWE	u8m	3192	257	1269	4126	2030	331	629		
C	OTTER	none	SWE	u8m	816			66					
C	POTS	none	FIN	u8m	532031	505759	510189	483518	472706	527856	609518	586124	599198
C	POTS	none	SWE	u8m	255454	240193	275226	277286	251989	227243	247262	234842	191732
C	r-GILL	none	SWE	u8m	47268	39858	49762	46841	40313	28534	38939	38007	25078
C	r-LONGLINE	none	SWE	u8m				3077					
C	TRAMMEL	none	SWE	u8m	912	912							

5.1.7.2 Catches (landings and discards) of small boats by area, Member State and fisheries

STECF notes that discard observation and estimation are scarce for small boats. Using the information available, the estimated catches are believed to represent rather landings. According to provided information (Table 5.1.7.2.1) the biggest cod landings on average were taken with fishing gears named as “none” (34%) and regulated gill nets (34%) (Figure 5.1.7.2.1). Other important gears for cod landings were unregulated gill nets (23%) and regulated longlines (7%). By other types of fishing gears 2% of cod was fished only.

The landings of cod were taken almost equally from the area A (53%) and from the area B (47%) (Figure 5.1.7.2.2). The catches of cod in the area C consisted of less than 0.1% of total landings. The landings of cod in the area 28.2 consisted of 2% of all landings in the area B only. Since 2005 the negative trend in total cod landings can be observed. The main reason of that insignificant decrease- of landings in the area A. Comparison of 2011 and 2010 reveals clear decrease of cod landings o take by regulated gill nets and increase in landings

taken by unregulated gill nets. Landings of cod corresponding to vessels of length overall less than 8 m consist of 4.2% of total catches in the area A, 1.6% - in the areas B+C and 2.2% - for all Baltic.

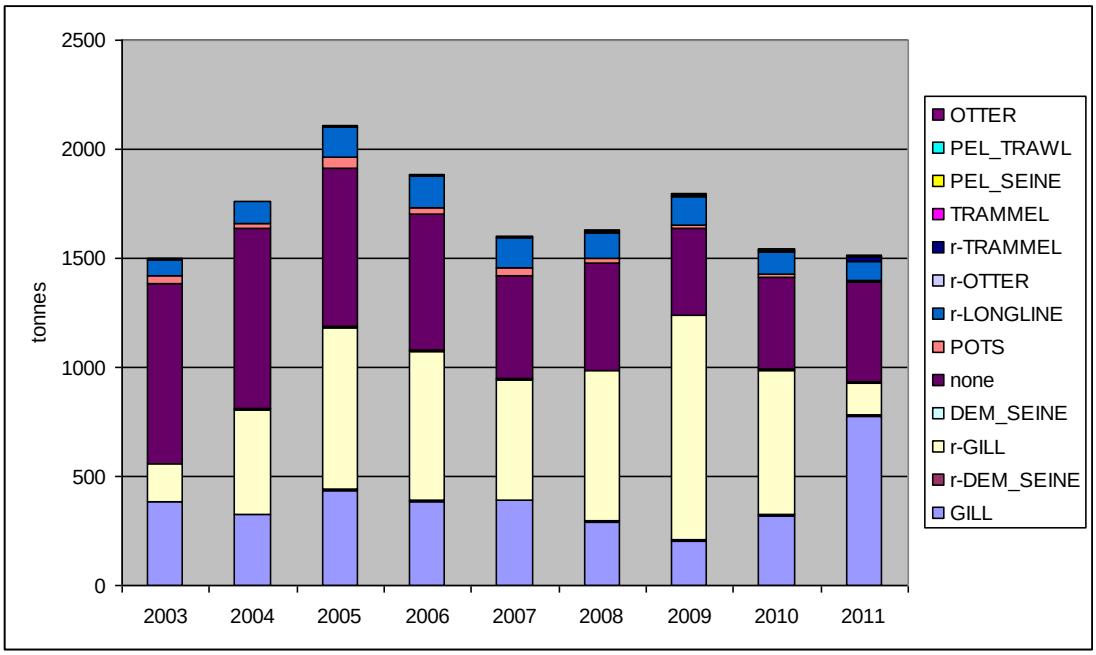

Figure 5.1.7.2.1 Distribution of cod landings taken by different gear types in 2003 – 2011.

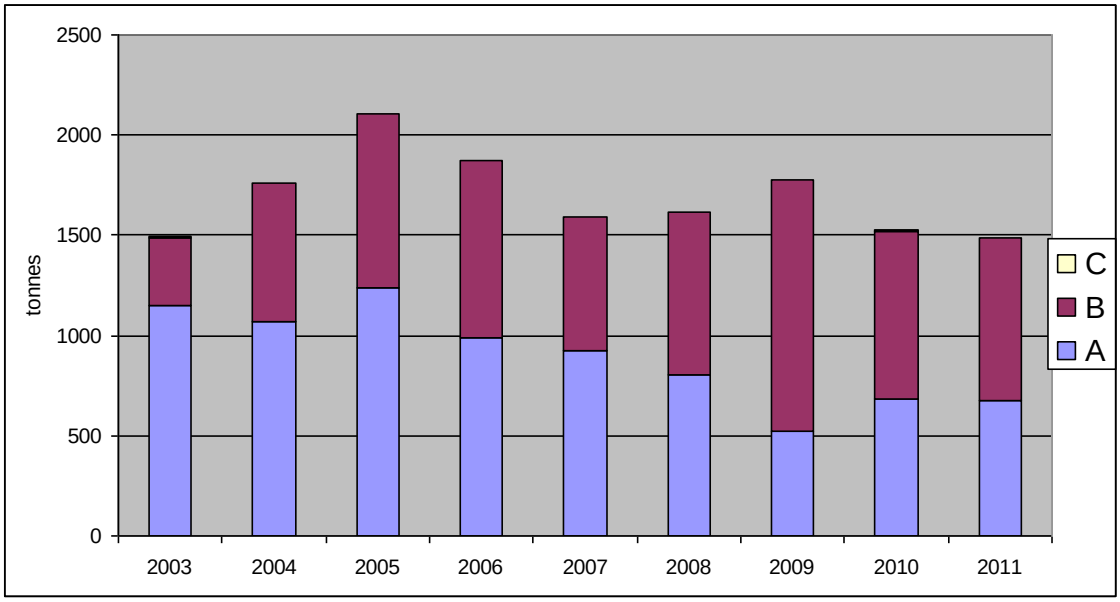

Figure 5.1.7.2.2 Cod landings and dynamics (2003 – 2011) in the areas A, B, C.

Table 5.1.7.2.1. Cod landings taken by < 8 m vessels in 2003-2011 (t).

REG_AREA	REG_GEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011
28.2	GILL									
28.2	r-DEM_SEINE									
28.2	r-GILL			8	39	50	36	8	6	4
28.2	r-LONGLINE									
28.2 TOTAL		0	0	8	39	50	36	8	6	4
A	GILL	386	321	436	381	388	290	199	308	263
A	none	717	648	589	471	340	327	222	290	330
A	OTTER									
A	POTS	7	10	33	16	23	5	4	9	5
A	r-DEM_SEINE									
A	r-GILL	35	76	145	106	128	154	85	65	55
A	r-LONGLINE	1	10	27	13	44	18	10	8	6
A	r-OTTER		1				1			
A	r-TRAMMEL	5	1	6	3	5	9	4	7	19
A	TRAMMEL									
A TOTAL		1151	1067	1236	990	928	804	524	687	678
B	GILL		6	2	4	1	2	6	7	511
B	none	108	179	142	152	134	166	175	125	127
B	PEL_SEINE									
B	POTS	23	14	14	14	11	14	7	6	4
B	r-GILL	138	403	598	580	421	530	939	600	89
B	r-LONGLINE	70	90	111	136	95	96	124	93	80
B	r-OTTER									
B	r-TRAMMEL								5	1
B	TRAMMEL									
B TOTAL		339	692	867	886	662	808	1251	836	812
C	GILL						1	1	1	1
C	POTS	9								
C	r-GILL									
C	r-LONGLINE									
C TOTAL		9	0	0	0	0	1	1	1	1
GRAND TOTAL A+B+C		**1499**	**1759**	**2103**	**1876**	**1590**	**1613**	**1776**	**1524**	**1491**

5.1.8 ToR 4 Partial fishing mortality of cod by area, Member State and fisheries

EWG 12-12 interprets this task as largely overlapping with ToR 10. The EWG 12-12 analyses and response can be found in section 5.1.14.

5.1.9 ToR 5 Trend in calculated maximum effort of regulated gears and uptake by area and Member State

The EWG was given the task of quantifying the evolution of the calculated maximum effort allocated to the cod fleet (ceiling of days using regulated gear types) in relation to the effort actually used by that fleet and was asked to highlight possible shifts between métiers.

The group analysed the data obtained by the DCF data call of 2nd February 2012 and found that the available data do not support an analyses to estimate the uptake of the fishing effort. However, STECF EWG 12-12 estimated the effort ceilings from the available data from the numbers of boats using a regulated gears in a

given area and year times the maximum number of days granted as stipulated in the annual TAC and quota regulations. These can be seen in the following Table 5.1.9.1.

Table 5.1.9.1 Estimated ceilings (maximum) of days at sea by area and country as estimated from the number of vessels using any regulated gear in any area times the maximum days at sea per vessel.

Area A							Area B						
COUNTRY	2006	2007	2008	2009	2010	2011	COUNTRY	2006	2007	2008	2009	2010	2011
DEU	97734	90024	75374	65325	55024	46455	DEU	14514	6188	8544	9280	8480	8480
DNK	146874	119536	90984	74370	58463	53138	DNK	47724	27482	21894	20160	18560	18560
EST	1092	744	446	402	362		EST	10578	6552	5340	4160	4800	4800
FIN	819	744	892	1005	1267	1304	FIN	738	546	712	800	1120	1120
							LTU				5440	4800	4800
LVA	8190	3224	669	402	1629	163	LVA	20172	12012	10502	10240	9120	9120
POL	41496	64728	43931	24120	15204	13692	POL	133332	90272	82770	52640	50560	50560
SWE	36309	35712	30997	24723	19186	20701	SWE	76752	56056	48772	43520	37280	37280
sum	332514	314712	243293	190347	151135	135453		303810	199108	178534	146240	134720	134720

The STECF EWG did also estimate the trends in days used by the individual vessels deploying regulated gears. The resulting figures are given in the Table 5.1.9.2. Now these figures cannot be linked in order to estimate the requested uptake of effort. STECF EWG 12-12 notes that the upper Table 5.1.9.1 provides estimated maximum allowed days for all vessels using any of the regulated gears while the table below is vessel and fisheries specific (by gear group). Such information is incompatible as any vessel may have switched the gear groups and thus may be multiple counted. Given the lack of vessel specific effort data and that the regulation of maximum effort allowed is by vessel when using any regulated gear, STECF EWG 12-12 concludes that the ToR to estimate the effort uptake cannot be accomplished properly.

STECF EWG 12-12 concludes that simple fishing effort ceilings by vessel imply a number of drawbacks which imply management risks of missing the management goal. Without taking into account the fishing power of boats of different length and engine power and without accounting for the effectiveness of the gears used, such management risk appears unacceptably high. STECF EWG 12-12 recommends that, if the management wants to continue a fishing effort management scheme in the Baltic, a more suitable effort unit shall be defined and applied to account for fisheries specific effects.

Further conclusions on the effort unit of kWdays at sea and its relation to fishing mortality by fisheries are provided in section 5.1.14.

Table 5.1.9.2. Estimated days at sea used by Member States in the various areas deploying regulated gears.

ANNEX	REG AREA	REG GEAR COD	COUNTRY	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bal	28.2	r-DEM_SEINE	LVA	46	31					86	87	
Bal	28.2	r-GILL	EST				1					
Bal	28.2	r-GILL	LVA	1036	336	598	430	366	153	343	534	414
Bal	28.2	r-OTTER	EST				1	1				
Bal	28.2	r-OTTER	LVA	200	402	435	312	287	173	99	38	161
Bal	28.2	r-PEL_TRAWL	LVA	4		31	25	5		13		
Bal	A	r-BEAM	DEU	2					18			
Bal	A	r-BEAM	DNK								1	
Bal	A	r-DEM_SEINE	DEU		18	4	49	66	100	83	23	46
Bal	A	r-DEM_SEINE	DNK						917	628	473	317
Bal	A	r-GILL	DEU	8462	7219	14201	22002	21213	17262	13418	11971	11310
Bal	A	r-GILL	DNK						12001	10655	9228	7920
Bal	A	r-GILL	EST			115	124	68	125	151		
Bal	A	r-GILL	LTU									
Bal	A	r-GILL	LVA	472	811	1044	997	145	47	12	48	21
Bal	A	r-GILL	POL		3908	4173	2656	4062	2912	1914	1129	1110
Bal	A	r-GILL	SWE	6311	5329	5743	5015	4958	5547	4643	4057	3944
Bal	A	r-LONGLINE	DEU	917	918	1456	1659	1449	1375	1625	976	772
Bal	A	r-LONGLINE	DNK						558	573	640	681
Bal	A	r-LONGLINE	LTU									
Bal	A	r-LONGLINE	POL		389	1601	544	693	240	123	87	120
Bal	A	r-LONGLINE	SWE	71	328	807	325	150	124	388	319	472
Bal	A	r-OTTER	DEU	10251	9467	8771	8125	7952	6727	5677	5239	5317
Bal	A	r-OTTER	DNK						9316	8507	7180	6110
Bal	A	r-OTTER	EST			7					6	
Bal	A	r-OTTER	LTU									
Bal	A	r-OTTER	LVA	4		76		84			36	
Bal	A	r-OTTER	POL		748	1361	589	2374	1323	940	717	733
Bal	A	r-OTTER	SWE	754	705	589	807	960	728	415	331	691
Bal	A	r-PEL_TRAWL	DEU	67	20	78	120	177	22		17	27
Bal	A	r-PEL_TRAWL	DNK						17	14	44	4
Bal	A	r-PEL_TRAWL	EST			3		3				
Bal	A	r-PEL_TRAWL	LTU									
Bal	A	r-PEL_TRAWL	POL		3	40	3	8			1	
Bal	A	r-PEL_TRAWL	SWE		5	6	9		1			6
Bal	A	r-TRAMMEL	DEU	182	295	643	1091	2150	2092	2065	1349	1734
Bal	A	r-TRAMMEL	DNK						4253	4424	4008	3185
Bal	A	r-TRAMMEL	SWE	378	340	722	596	522	683	963	616	443
Bal	B	r-DEM_SEINE	DEU		2		20	15	18	41	52	76
Bal	B	r-DEM_SEINE	DNK									16
Bal	B	r-DEM_SEINE	POL									1
Bal	B	r-GILL	DEU	67	50	361	82	58	24	50		
Bal	B	r-GILL	DNK						2362	2078	1645	1674
Bal	B	r-GILL	EST			462	458	308	140	101		
Bal	B	r-GILL	LTU							944	821	635
Bal	B	r-GILL	LVA	8803	9376	4413	3501	3306	3024	2447	2213	2140
Bal	B	r-GILL	POL		40916	25446	21835	17523	13910	11214	10733	10158
Bal	B	r-GILL	SWE	18648	15348	12125	10484	9220	10766	9395	6868	6188
Bal	B	r-LONGLINE	DEU	57	74	92	47	56	82	59	30	11
Bal	B	r-LONGLINE	DNK						475	633	693	669
Bal	B	r-LONGLINE	LTU							80	43	58
Bal	B	r-LONGLINE	POL		7984	7926	8748	5036	3101	2862	3706	3352
Bal	B	r-LONGLINE	SWE	3304	3944	3574	3503	1925	2513	2226	1671	1901
Bal	B	r-OTTER	DEU	1043	644	996	625	282	775	1078	1365	485
Bal	B	r-OTTER	DNK						2625	2694	3120	4133
Bal	B	r-OTTER	EST			100	26	43			171	281
Bal	B	r-OTTER	LTU							1300	1508	1812
Bal	B	r-OTTER	LVA	1759	1421	1054	1546	797	1012	806	892	2005
Bal	B	r-OTTER	POL		24902	15831	17179	10038	7031	4601	5562	5583
Bal	B	r-OTTER	SWE	5275	5079	4262	4041	2640	2847	2539	2810	3427
Bal	B	r-PEL_TRAWL	DEU		626	441	357	247	79	168	281	515
Bal	B	r-PEL_TRAWL	DNK						5	15	16	24
Bal	B	r-PEL_TRAWL	EST			125	163	178	230	109	61	225
Bal	B	r-PEL_TRAWL	LTU							90	8	20
Bal	B	r-PEL_TRAWL	LVA	23	462	12	136	547	43	58		
Bal	B	r-PEL_TRAWL	POL		2342	496	1534	1059	56	89	10	74
Bal	B	r-PEL_TRAWL	SWE		260	205	651	296	63	66	60	197
Bal	B	r-TRAMMEL	DNK						58	202	40	16
Bal	B	r-TRAMMEL	SWE	128	117	18	14	29	59	18	1	6
Bal	C	r-GILL	EST			1	1					
Bal	C	r-GILL	SWE	1133	1141	1156	1045	862	874	859	1021	902
Bal	C	r-LONGLINE	SWE	15					1		0	
Bal	C	r-OTTER	EST			21	27	14	21			
Bal	C	r-OTTER	SWE			1			8			
Bal	C	r-TRAMMEL	SWE				24					

5.1.10 ToR 6 Evaluation of fully documented fisheries FDF

5.1.10.1 Fishing effort of FDF vessels by area, Member State and fisheries in comparison with fisheries not working under FDF provisions

Table 5.1.10.1.1 provides the information on fully documented fishery, which was made available to the Expert Group. The data were provided only by Denmark for the Areas A and B by gear types for 2010 and 2011. The fully documented fishery represented 4% of the total Danish regulated effort deployed in both areas A and B in 2010 and 10% in 2011.

Table 5.1.10.1.1 Danish fishing effort (kWdays at sea) and cod landings (t) taken by FDF vessels.

REG AREA COD	REG GEAR COD	SPECON	COUNTRY	Year 2010 (effort)	2010 L (cod)	2010 D (cod)	Year 2011 (effort)	2011 L (cod)	2011 D (cod)
A	PEL_TRAWL	FDFBAL	DNK	440					
	r-DEM_SEINE	FDFBAL	DNK				6256	56	0
	r-OTTER	FDFBAL	DNK	41001	264	0	78223	620	0
	r-PEL_TRAWL	FDFBAL	DNK	660	8	0			
B	DEM_SEINE	FDFBAL	DNK	3740			9240	1	0
	none	FDFBAL	DNK	220					
	OTTER	FDFBAL	DNK	440	0	0			
	PEL_TRAWL	FDFBAL	DNK	12760	2	0	3960	0	0
	r-OTTER	FDFBAL	DNK	83407	725	0	221886	1633	0
	r-PEL_TRAWL	FDFBAL	DNK	1540	19	0			
Grand Total				144208	1018	0	319565	2310	0

5.1.10.2 Catches (landings and discards) of cod and other species taken by FDF fisheries by area, Member State and fisheries in comparison with fisheries not working under FDF provisions

The reported Danish landings of cod from the fully documented fishery amounted to 272 t in area A and 746 t in area B (total 1018 t) in 2010 (Table 5.1.10.1.1). The respective values for 2011 were 676 t in area A and 1,634t for area B. The landings from fully documented fishery covered 6% from the reported cod landings in these areas in 2010 and 9% of the landings in 2011. No discards were reported in this segment of fishery for both years.

5.1.11 ToR 7 Spatio-temporal patterns in effective effort by area and fisheries

According to available effort data in units of fished hours, the spatial distribution of deployed otter trawl effort (Figure 5.1.11.1) did not show any particular trend over the time series. During 2003–2011 period the biggest fishing effort concentration was observed in areas of Bornholm Deep and in the northern part of Polish EEZ. However, the effort seems to be distributed more evenly across the areas A-C after 2006.

The gillnet effort has been concentrated in areas A and B without any clear temporal pattern (Figure 5.1.11.2). During 2003–2011 period the biggest fishing efforts concentration was in the Polish coastal areas. The Figure 5.1.11.3 shows the general distribution pattern of another big contributor of effort in the Baltic – the pelagic trawls. The distribution pattern indicates the high concentration of effort in the areas of Bornholm and Gdansk Deep as well as in the Sub-division 28.2 in 2003-2007.

The pelagic trawl effort was distributed rather evenly in the most recent years. This can be explained with northward distribution of sprat stock in recent years (ICES, 2012).

A full set of effort distribution figures, will be made available on the web page of the EWG 12-12.

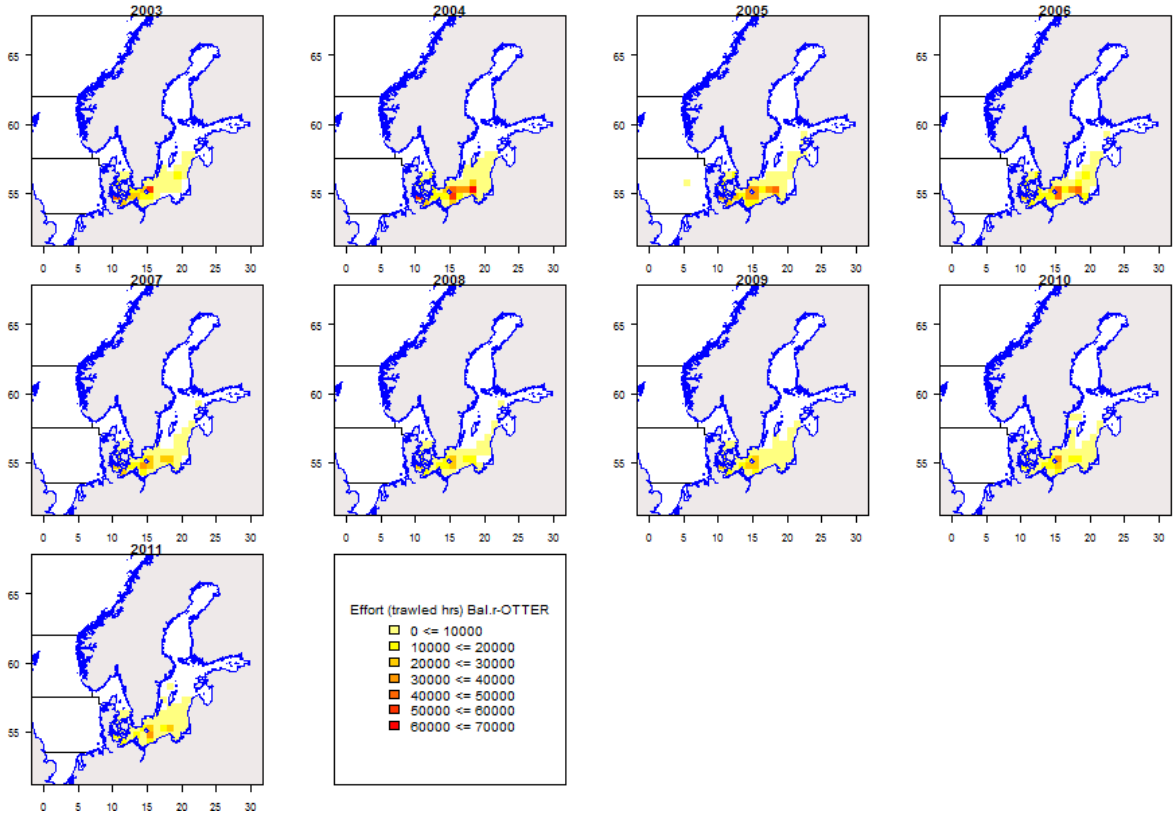

Figure 5.1.11.1 Spatial distribution of effective effort (trawled hours) r-OTTER 2003-2011. There was no data reported on the spatial distribution from Finland.

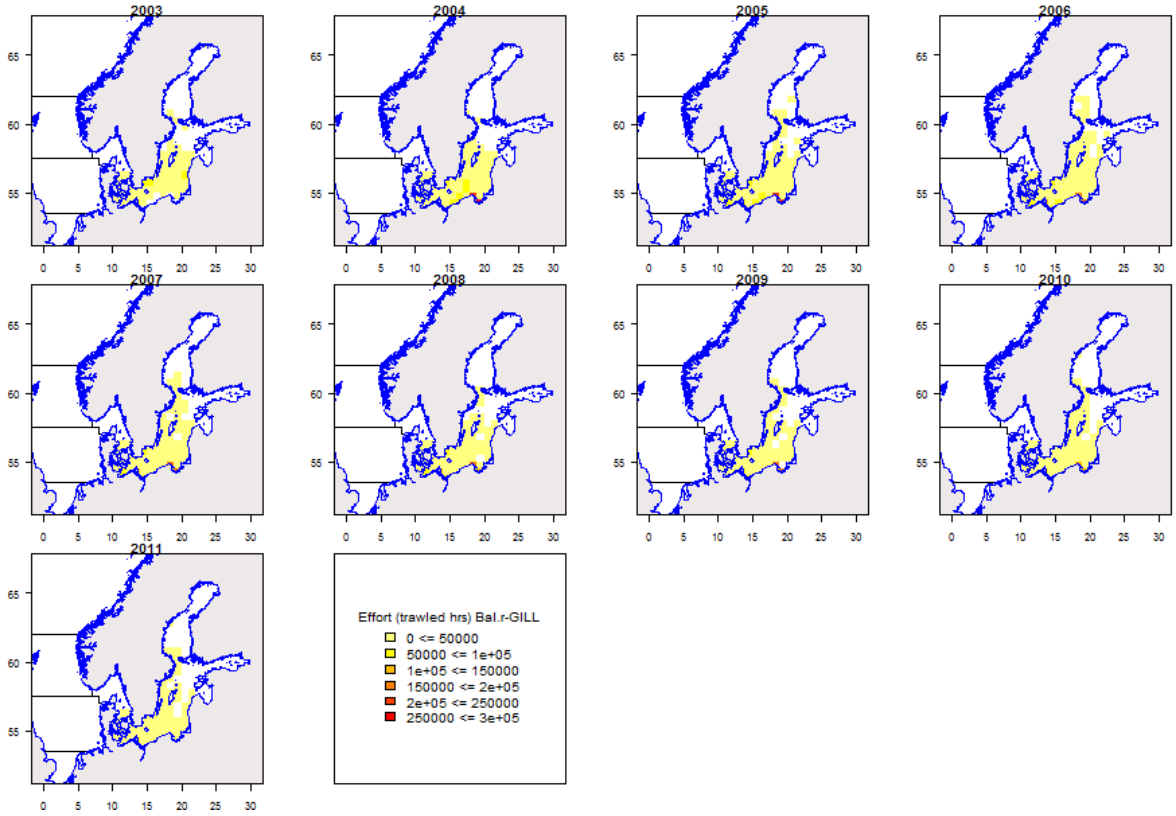

Figure. 5.1.11.2 Spatial distribution of effective effort (fishing hours) r-Gill 2003-2011. There was no data reported on the spatial distribution from Finland.

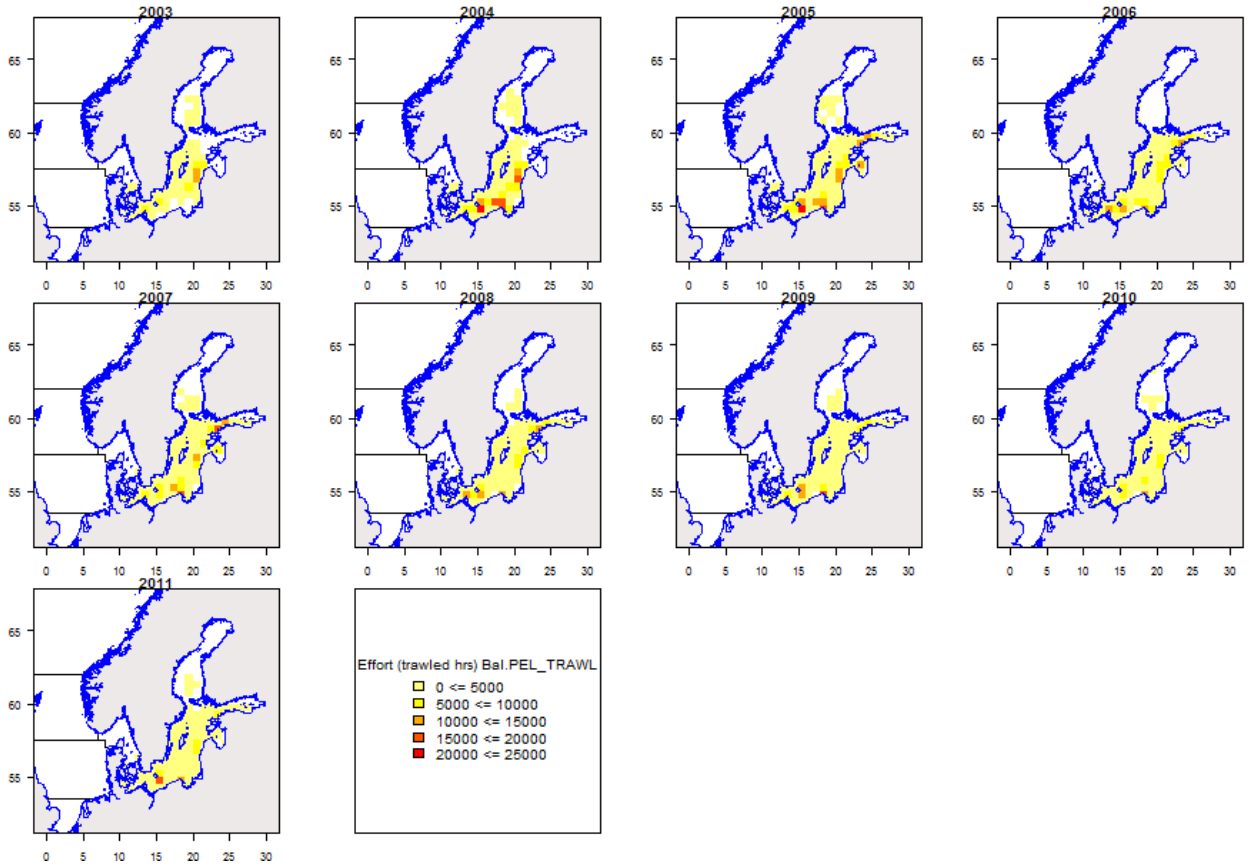

Figure. 5.1.11.3 Spatial distribution of effective effort (fishing hours) pelagic trawls 2003-2011. There was no data reported on the spatial distribution from Finland.

5.1.12 ToR 8 Any unexpected evolutions of the trends in catches and effort by area, Member State and fisheries

The STEF EWG 12-12 has no specific observations to report.

5.1.13 ToR 9 Correlation between partial cod mortality and fishing effort by area, Member State and fisheries

The STECF EWG 12-12 has estimated partial fishing mortalities of both stocks of Western and Eastern Baltic cod for all identified regulated and non-regulated gear groups by Member States and correlated them against fishing effort. The major fisheries are presented in the following section 5.1.14.

5.1.14 ToR 10 Estimation of partial fishing mortalities of cod by area, Member State and fisheries and correlation between partial cod mortality and fishing effort by area, Member State and fisheries

5.1.14.1 Western Baltic cod in area A

The STECF EWG presents partial fishing mortalities by fisheries using regulated gears and Member States in relation to the estimated fishing mortality by ICES (2012) and the catches (s. Tab. 5.1.14.1.1), landings (s. Tab. 5.1.14.1.2) and discards volumes (s. Tab. 5.1.14.1.3), respectively. The full list of partial fishing mortalities of all fisheries can be downloaded from the EWG's web page. The anticipated trend in fishing mortality and fishing effort in units of kW days at sea as derived from the cod plan is also presented in upper parts of such tables. The sustainable exploitation target is defined as Fmsy=0.25. The trends in fishing effort in units of kWdays at sea of the relevant fisheries are also presented in Table 5.1.14.1.1-3. The presented parameters r (absolute value of Pearson's coefficient of correlation), numbers of points considered as well as a p value to quantify the statistical significance ($\leq$0.05) allow conclusions about the quality of the correlation between the partial F and fisheries specific fishing effort. The trajectories between partial F and fishing effort in are shown in Fig. 5.1.14.1.1.

It can be concluded from the estimated F in 2012 (Tab. 5.1.14.1.1) that the stock is subject to overfishing and that the annual F reductions are following the plan since 2010. Discard mortality is generally low (Tab. 5.1.14.1.3). In recent years the listed effort regulated fisheries do contribute more than 86% to the total fishing mortality.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for catch and landings of the major fisheries and their estimated fishing efforts are highly significant. The correlation between the rather low partial Fs of discards and effort are not significant, but discarding is considered a minor issue in the Western Baltic anyway. The partial Fs of most of the Member States fisheries using regulated gears are also closely correlated with their specific effort estimates in kW days at sea. This indicates that effective fisheries management by fishing effort in units of kWdays at sea appears possible, also as an auxiliary measure to catch constraints and technical measures.

Table 5.1.14.1.1 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for catches of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.25, not to F=0.6										Reference year				
							2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F plan							1.015	1.093	1.063	0.738	0.707	0.636	0.572	0.515	0.464	0.418
reduction F plan												-0.10	-0.10	-0.10	-0.10	-0.10
F estimated							1.015	1.093	1.063	0.738	0.707	0.725	0.604	0.443	0.420	
reduction F estimated												0.03	-0.17	-0.27	-0.05	
F par estimated as F*landings or discards(fishery)/Catch(total)																
Regime	Area	Species	Country	Gear	Specon	catch.cate	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bal	A	COD	DEU	r-BEAM	none	catch	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	
Bal	A	COD	DEU	r-DEM_SE	none	catch	0.0000	0.0003	0.0015	0.0015	0.0039	0.0085	0.0068	0.0015	0.0017	
Bal	A	COD	DEU	r-GILL	none	catch	0.0375	0.0300	0.0434	0.0524	0.0463	0.0524	0.0334	0.0346	0.0219	
Bal	A	COD	DEU	r-LONGLIN	none	catch	0.0005	0.0011	0.0023	0.0010	0.0005	0.0007	0.0005	0.0009	0.0007	
Bal	A	COD	DEU	r-OTTER	none	catch	0.1800	0.1884	0.1894	0.1591	0.1436	0.1164	0.1019	0.0893	0.0874	
Bal	A	COD	DEU	r-PEL_TRA	none	catch	0.0015	0.0005	0.0013	0.0023	0.0051	0.0002	0.0000	0.0004	0.0004	
Bal	A	COD	DEU	r-TRAMMI	none	catch	0.0001	0.0001	0.0006	0.0009	0.0024	0.0033	0.0024	0.0012	0.0019	
Bal	A	COD	DNK	r-DEM_SE	none	catch	0.0502	0.0658	0.0407	0.0421	0.0426	0.0418	0.0205	0.0135	0.0095	
Bal	A	COD	DNK	r-GILL	none	catch	0.0535	0.0686	0.1143	0.0694	0.0572	0.0638	0.0512	0.0404	0.0359	
Bal	A	COD	DNK	r-LONGLIN	none	catch	0.0125	0.0146	0.0276	0.0144	0.0113	0.0045	0.0043	0.0045	0.0054	
Bal	A	COD	DNK	r-OTTER	none	catch	0.2759	0.3648	0.2668	0.1935	0.1889	0.1885	0.1867	0.1268	0.1316	
Bal	A	COD	DNK	r-PEL_TRA	none	catch	0.0018	0.0011	0.0022	0.0029	0.0005	0.0002	0.0008	0.0010	0.0000	
Bal	A	COD	DNK	r-TRAMMI	none	catch	0.0097	0.0114	0.0174	0.0144	0.0124	0.0155	0.0104	0.0099	0.0093	
Bal	A	COD	EST	r-GILL	none	catch	0.0000	0.0000	0.0023	0.0031	0.0014	0.0045	0.0070	0.0000	0.0000	
Bal	A	COD	EST	r-OTTER	none	catch	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	EST	r-PEL_TRA	none	catch	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-LONGLIN	none	catch	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-OTTER	none	catch	0.0000	0.0000	0.0047	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-PEL_TRA	none	catch	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LVA	r-GILL	none	catch	0.0044	0.0117	0.0156	0.0174	0.0025	0.0010	0.0008	0.0021	0.0006	
Bal	A	COD	LVA	r-OTTER	none	catch	0.0001	0.0000	0.0021	0.0000	0.0051	0.0000	0.0000	0.0028	0.0000	
Bal	A	COD	POL	r-GILL	none	catch	0.0000	0.0152	0.0171	0.0131	0.0241	0.0219	0.0105	0.0049	0.0056	
Bal	A	COD	POL	r-LONGLIN	none	catch	0.0000	0.0016	0.0099	0.0038	0.0072	0.0027	0.0003	0.0004	0.0005	
Bal	A	COD	POL	r-OTTER	none	catch	0.0000	0.0067	0.0113	0.0057	0.0343	0.0222	0.0090	0.0039	0.0068	
Bal	A	COD	POL	r-PEL_TRA	none	catch	0.0000	0.0000	0.0010	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	SWE	r-GILL	none	catch	0.0468	0.0581	0.0438	0.0319	0.0314	0.0426	0.0343	0.0239	0.0217	
Bal	A	COD	SWE	r-LONGLIN	none	catch	0.0010	0.0055	0.0077	0.0030	0.0015	0.0020	0.0055	0.0031	0.0041	
Bal	A	COD	SWE	r-OTTER	none	catch	0.0319	0.0374	0.0233	0.0384	0.0452	0.0447	0.0338	0.0156	0.0490	
Bal	A	COD	SWE	r-PEL_TRA	none	catch	0.0000	0.0004	0.0002	0.0002	0.0000	0.0001	0.0000	0.0000	0.0002	
Bal	A	COD	SWE	r-TRAMMI	none	catch	0.0009	0.0011	0.0026	0.0024	0.0010	0.0016	0.0017	0.0026	0.0018	
Sum							0.7083	0.8844	0.8498	0.6743	0.6688	0.6394	0.5218	0.3833	0.3960	
check sum Fpar/F							0.6978	0.8091	0.7994	0.9137	0.946	0.8819	0.8639	0.8652	0.9429	

Effort kW days running previous year baseline						Reference year								
	2003	2004	2005	2006	2007	2008	2009	2010	2011					
Effort plan/ TAC regulations not applicable as days at sea per vessel														
reduction														
Effort estimated (re	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881					
						-0.13	-0.17	-0.16	-0.04					
EFFORT										2003-2011				
kW days at sea	2003	2004	2005	2006	2007	2008	2009	2010	2011	r	p	n		
	442	0	0	0	0	3867	0	0	0	NA	NA	2		
	0	7398	1912	23422	37741	38400	42327	9713	13789	0.848	0.008	8		
	786357	662527	1135980	1449940	1457215	1247682	932027	893907	809150	0.852	0.004	9		
	78859	80543	122727	119348	100892	97335	122409	74286	62880	0.342	0.367	9		
	1906314	1753928	1686831	1481387	1491775	1207722	1028646	933844	964057	0.971	0.000	9		
	14111	3975	17039	20699	30856	3443	0	3740	5756	0.949	0.000	8		
	10392	21308	40549	67494	132416	128657	134669	77750	106349	0.957	0.000	9		
	367803	394203	266393	252561	238431	181854	118870	92271	54972	0.953	0.000	9		
	571865	548685	1292689	996895	805567	873961	816545	673772	594059	0.808	0.008	9		
	104894	91833	190411	205287	128411	32694	36906	44680	47835	0.84	0.005	9		
	3376295	2927587	3073583	2063167	1822436	1680846	1460281	1177622	1080463	0.879	0.002	9		
	22012	13656	18809	26622	6246	2831	2744	8255	561	0.948	0.000	9		
	203360	176945	368235	311504	309804	351748	358269	323131	271262	0.522	0.149	9		
	0	0	40887	57436	19041	39051	41349	0	0	0.326	0.592	5		
	0	0	4199	0	0	0	0	4248	0	NA	NA	2		
	0	0	662	0	1269	0	0	0	0	NA	NA	2		
	0	0	12533	0	0	0	0	0	0	NA	NA	1		
	0	0	57602	84342	0	0	0	0	0	NA	NA	2		
	0	0	16799	0	0	0	0	0	0	NA	NA	1		
	79148	142491	171002	161456	30116	12676	3528	11604	6174	0.974	0.000	9		
	880	0	17632	0	18488	0	0	7920	0	NA	NA	4		
	0	236261	331555	199045	325354	228173	135263	84558	80203	0.882	0.004	8		
	0	17962	143615	46306	53736	21615	6391	4502	6288	0.94	0.001	8		
	0	172618	310416	185144	618979	315079	172795	114560	96578	0.947	0.000	8		
	0	2220	16612	1258	2612	0	0	160	0	0.992	0.001	5		
	730577	620542	661911	569385	546464	625243	517212	442913	439498	0.825	0.006	9		
	7730	46041	112396	40756	19061	14536	43369	39643	60377	0.901	0.001	9		
	278503	220717	215686	338505	425893	345335	190277	155830	306992	0.777	0.014	9		
	0	2882	2424	4198	0	720	0	0	1930	0.577	0.308	5		
	34418	29157	58699	45260	45160	50335	95011	62057	38708	0.388	0.301	9		
	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881	0.893	0.001	9		

Table 5.1.14.1.2 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for landings of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.25, not to F=0.6												Reference year					
							2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F plan							1.015	1.093	1.063	0.738	0.707	0.636	0.572	0.515	0.464	0.418
reduction F plan												-0.10	-0.10	-0.10	-0.10	-0.10
F estimated							1.015	1.093	1.063	0.738	0.707	0.725	0.604	0.443	0.420	
reduction F estimated												0.03	-0.17	-0.27	-0.05	
F par estimated as F*landings or discards(fishery)/Catch(total)																
Regime	Area	Species	Country	Gear	Specon	catch.cate	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bal	A	COD	DEU	r-BEAM	none	landings	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	
Bal	A	COD	DEU	r-DEM_SE	none	landings	0.0000	0.0003	0.0014	0.0015	0.0039	0.0085	0.0068	0.0015	0.0017	
Bal	A	COD	DEU	r-GILL	none	landings	0.0370	0.0294	0.0417	0.0524	0.0463	0.0524	0.0304	0.0336	0.0212	
Bal	A	COD	DEU	r-LONGLIN	none	landings	0.0005	0.0011	0.0022	0.0010	0.0005	0.0007	0.0005	0.0009	0.0007	
Bal	A	COD	DEU	r-OTTER	none	landings	0.1288	0.1734	0.1709	0.1491	0.1349	0.1085	0.0914	0.0731	0.0773	
Bal	A	COD	DEU	r-PEL_TRA	none	landings	0.0015	0.0005	0.0013	0.0023	0.0051	0.0002	0.0000	0.0004	0.0003	
Bal	A	COD	DEU	r-TRAMM	none	landings	0.0001	0.0001	0.0006	0.0009	0.0024	0.0033	0.0021	0.0012	0.0019	
Bal	A	COD	DNK	r-DEM_SE	none	landings	0.0474	0.0620	0.0382	0.0402	0.0388	0.0418	0.0202	0.0133	0.0092	
Bal	A	COD	DNK	r-GILL	none	landings	0.0527	0.0679	0.1097	0.0694	0.0572	0.0638	0.0487	0.0394	0.0359	
Bal	A	COD	DNK	r-LONGLIN	none	landings	0.0123	0.0145	0.0263	0.0144	0.0113	0.0045	0.0043	0.0045	0.0054	
Bal	A	COD	DNK	r-OTTER	none	landings	0.2742	0.3645	0.2662	0.1934	0.1887	0.1881	0.1863	0.1265	0.1316	
Bal	A	COD	DNK	r-PEL_TRA	none	landings	0.0017	0.0011	0.0022	0.0029	0.0005	0.0002	0.0008	0.0010	0.0000	
Bal	A	COD	DNK	r-TRAMM	none	landings	0.0096	0.0113	0.0169	0.0144	0.0124	0.0155	0.0100	0.0099	0.0093	
Bal	A	COD	EST	r-GILL	none	landings	0.0000	0.0000	0.0022	0.0031	0.0014	0.0045	0.0068	0.0000	0.0000	
Bal	A	COD	EST	r-OTTER	none	landings	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	EST	r-PEL_TRA	none	landings	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-LONGLIN	none	landings	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-OTTER	none	landings	0.0000	0.0000	0.0047	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-PEL_TRA	none	landings	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LVA	r-GILL	none	landings	0.0043	0.0116	0.0149	0.0174	0.0025	0.0010	0.0008	0.0020	0.0006	
Bal	A	COD	LVA	r-OTTER	none	landings	0.0001	0.0000	0.0021	0.0000	0.0047	0.0000	0.0000	0.0025	0.0000	
Bal	A	COD	POL	r-GILL	none	landings	0.0000	0.0149	0.0164	0.0131	0.0241	0.0219	0.0093	0.0048	0.0055	
Bal	A	COD	POL	r-LONGLIN	none	landings	0.0000	0.0016	0.0094	0.0038	0.0072	0.0027	0.0003	0.0004	0.0005	
Bal	A	COD	POL	r-OTTER	none	landings	0.0000	0.0061	0.0113	0.0053	0.0322	0.0209	0.0083	0.0036	0.0057	
Bal	A	COD	POL	r-PEL_TRA	none	landings	0.0000	0.0000	0.0010	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	SWE	r-GILL	none	landings	0.0461	0.0573	0.0421	0.0319	0.0314	0.0426	0.0329	0.0234	0.0214	
Bal	A	COD	SWE	r-LONGLIN	none	landings	0.0010	0.0053	0.0075	0.0030	0.0015	0.0020	0.0055	0.0031	0.0041	
Bal	A	COD	SWE	r-OTTER	none	landings	0.0305	0.0355	0.0232	0.0365	0.0416	0.0429	0.0306	0.0141	0.0341	
Bal	A	COD	SWE	r-PEL_TRA	none	landings	0.0000	0.0004	0.0002	0.0002	0.0000	0.0001	0.0000	0.0000	0.0001	
Bal	A	COD	SWE	r-TRAMM	none	landings	0.0008	0.0011	0.0024	0.0024	0.0010	0.0016	0.0016	0.0025	0.0017	
Sum							0.6486	0.8599	0.8157	0.6600	0.6500	0.6280	0.4976	0.3617	0.3682	
check sum Fpar/F							0.639	0.7867	0.7674	0.8943	0.9194	0.8662	0.8238	0.8165	0.8767	

Effort kW days running previous year baseline						Reference year							
	2003	2004	2005	2006	2007	2008	2009	2010	2011			
Effort plan/ TAC regulations not applicable as days at sea per vessel												
reduction												
Effort estimated (re	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881			
						-0.13	-0.17	-0.16	-0.04			
EFFORT										2003-2011		
kW days at sea	2003	2004	2005	2006	2007	2008	2009	2010	2011	r	p	n
	442	0	0	0	0	3867	0	0	0	NA	NA	2
	0	7398	1912	23422	37741	38400	42327	9713	13789	0.854	0.007	8
	786357	662527	1135980	1449940	1457215	1247682	932027	893907	809150	0.852	0.004	9
	78859	80543	122727	119348	100892	97335	122409	74286	62880	0.333	0.382	9
	1906314	1753928	1686831	1481387	1491775	1207722	1028646	933844	964057	0.866	0.003	9
	14111	3975	17039	20699	30856	3443	0	3740	5756	0.949	0.000	8
	10392	21308	40549	67494	132416	128657	134669	77750	106349	0.945	0.000	9
	367803	394203	266393	252561	238431	181854	118870	92271	54972	0.944	0.000	9
	571865	548685	1292689	996895	805567	873961	816545	673772	594059	0.801	0.009	9
	104894	91833	190411	205287	128411	32694	36906	44680	47835	0.85	0.004	9
	3376295	2927587	3073583	2063167	1822436	1680846	1460281	1177622	1080463	0.877	0.002	9
	22012	13656	18809	26622	6246	2831	2744	8255	561	0.945	0.000	9
	203360	176945	368235	311504	309804	351748	358269	323131	271262	0.508	0.163	9
	0	0	40887	57436	19041	39051	41349	0	0	0.334	0.583	5
	0	0	4199	0	0	0	0	4248	0	NA	NA	2
	0	0	662	0	1269	0	0	0	0	NA	NA	2
	0	0	12533	0	0	0	0	0	0	NA	NA	1
	0	0	57602	84342	0	0	0	0	0	NA	NA	2
	0	0	16799	0	0	0	0	0	0	NA	NA	1
	79148	142491	171002	161456	30116	12676	3528	11604	6174	0.973	0	9
	880	0	17632	0	18488	0	0	7920	0	NA	NA	4
	0	236261	331555	199045	325354	228173	135263	84558	80203	0.873	0.005	8
	0	17962	143615	46306	53736	21615	6391	4502	6288	0.93	0.001	8
	0	172618	310416	185144	618979	315079	172795	114560	96578	0.954	0	8
	0	2220	16612	1258	2612	0	0	160	0	0.992	0.001	5
	730577	620542	661911	569385	546464	625243	517212	442913	439498	0.825	0.006	9
	7730	46041	112396	40756	19061	14536	43369	39643	60377	0.896	0.001	9
	278503	220717	215686	338505	425893	345335	190277	155830	306992	0.819	0.007	9
	0	2882	2424	4198	0	720	0	0	1930	0.603	0.282	5
	34418	29157	58699	45260	45160	50335	95011	62057	38708	0.38	0.313	9
	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881	0.887	0.001	9

Table 5.1.14.1.3 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for discards of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.25, not to F=0.6												Reference year					
							2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F plan							1.015	1.093	1.063	0.738	0.707	0.636	0.572	0.515	0.464	0.418
reduction F plan												-0.10	-0.10	-0.10	-0.10	-0.10
F estimated							1.015	1.093	1.063	0.738	0.707	0.725	0.604	0.443	0.420	
reduction F estimated												0.03	-0.17	-0.27	-0.05	
F par estimated as F*landings or discards(fishery)/Catch(total)																
Regime	Area	Species	Country	Gear	Specon	catch.cate	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bal	A	COD	DEU	r-BEAM	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	DEU	r-DEM_SE	none	discards	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	DEU	r-GILL	none	discards	0.0006	0.0006	0.0016	0.0000	0.0000	0.0000	0.0030	0.0010	0.0007	
Bal	A	COD	DEU	r-LONGLIN	none	discards	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	DEU	r-OTTER	none	discards	0.0512	0.0151	0.0184	0.0100	0.0087	0.0079	0.0104	0.0162	0.0101	
Bal	A	COD	DEU	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	
Bal	A	COD	DEU	r-TRAMM	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	
Bal	A	COD	DNK	r-DEM_SE	none	discards	0.0028	0.0038	0.0025	0.0019	0.0037	0.0001	0.0003	0.0002	0.0003	
Bal	A	COD	DNK	r-GILL	none	discards	0.0007	0.0007	0.0046	0.0000	0.0000	0.0000	0.0026	0.0009	0.0000	
Bal	A	COD	DNK	r-LONGLIN	none	discards	0.0001	0.0000	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	DNK	r-OTTER	none	discards	0.0018	0.0003	0.0006	0.0002	0.0002	0.0004	0.0003	0.0003	0.0000	
Bal	A	COD	DNK	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	DNK	r-TRAMM	none	discards	0.0001	0.0001	0.0005	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	
Bal	A	COD	EST	r-GILL	none	discards	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	
Bal	A	COD	EST	r-OTTER	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	EST	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-LONGLIN	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-OTTER	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LTU	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	LVA	r-GILL	none	discards	0.0000	0.0001	0.0007	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	
Bal	A	COD	LVA	r-OTTER	none	discards	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0003	0.0000	
Bal	A	COD	POL	r-GILL	none	discards	0.0000	0.0003	0.0007	0.0000	0.0000	0.0000	0.0013	0.0001	0.0001	
Bal	A	COD	POL	r-LONGLIN	none	discards	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	POL	r-OTTER	none	discards	0.0000	0.0006	0.0000	0.0004	0.0021	0.0013	0.0007	0.0003	0.0012	
Bal	A	COD	POL	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	SWE	r-GILL	none	discards	0.0007	0.0008	0.0017	0.0000	0.0000	0.0001	0.0014	0.0005	0.0004	
Bal	A	COD	SWE	r-LONGLIN	none	discards	0.0000	0.0001	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	SWE	r-OTTER	none	discards	0.0014	0.0019	0.0001	0.0018	0.0036	0.0017	0.0032	0.0015	0.0149	
Bal	A	COD	SWE	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	A	COD	SWE	r-TRAMM	none	discards	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Sum							0.0594	0.0244	0.0339	0.0143	0.0187	0.0115	0.0243	0.0214	0.0278	
check sum Fpar/F							0.0585	0.0223	0.0319	0.0194	0.0264	0.0159	0.0402	0.0483	0.0662	

Effort kW days running previous year baseline						Reference year												
	2003	2004	2005	2006	2007	2008	2009	2010	2011									
Effort plan/ TAC regulations not applicable as days at sea per vessel																		
reduction																		
Effort estimated (re	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881									
						-0.13	-0.17	-0.16	-0.04									
EFFORT																2003-2011		
kW days at sea	2003	2004	2005	2006	2007	2008	2009	2010	2011	r	p	n						
	442	0	0	0	0	3867	0	0	0	NA	NA	2						
	0	7398	1912	23422	37741	38400	42327	9713	13789	-0.507	0.2	8						
	786357	662527	1135980	1449940	1457215	1247682	932027	893907	809150	-0.373	0.323	9						
	78859	80543	122727	119348	100892	97335	122409	74286	62880	0.452	0.221	9						
	1906314	1753928	1686831	1481387	1491775	1207722	1028646	933844	964057	0.589	0.095	9						
	14111	3975	17039	20699	30856	3443	0	3740	5756	-0.27	0.518	8						
	10392	21308	40549	67494	132416	128657	134669	77750	106349	0.423	0.256	9						
	367803	394203	266393	252561	238431	181854	118870	92271	54972	0.848	0.004	9						
	571865	548685	1292689	996895	805567	873961	816545	673772	594059	0.624	0.072	9						
	104894	91833	190411	205287	128411	32694	36906	44680	47835	0.53	0.143	9						
	3376295	2927587	3073583	2063167	1822436	1680846	1460281	1177622	1080463	0.709	0.033	9						
	22012	13656	18809	26622	6246	2831	2744	8255	561	0.427	0.251	9						
	203360	176945	368235	311504	309804	351748	358269	323131	271262	0.336	0.377	9						
	0	0	40887	57436	19041	39051	41349	0	0	0.097	0.877	5						
	0	0	4199	0	0	0	0	4248	0	NA	NA	2						
	0	0	662	0	1269	0	0	0	0	NA	NA	2						
	0	0	12533	0	0	0	0	0	0	NA	NA	1						
	0	0	57602	84342	0	0	0	0	0	NA	NA	2						
	0	0	16799	0	0	0	0	0	0	NA	NA	1						
	79148	142491	171002	161456	30116	12676	3528	11604	6174	0.548	0.127	9						
	880	0	17632	0	18488	0	0	7920	0	NA	NA	4						
	0	236261	331555	199045	325354	228173	135263	84558	80203	-0.034	0.936	8						
	0	17962	143615	46306	53736	21615	6391	4502	6288	0.918	0.001	8						
	0	172618	310416	185144	618979	315079	172795	114560	96578	0.657	0.077	8						
	0	2220	16612	1258	2612	0	0	160	0	NA	NA	5						
	730577	620542	661911	569385	546464	625243	517212	442913	439498	0.263	0.495	9						
	7730	46041	112396	40756	19061	14536	43369	39643	60377	0.85	0.004	9						
	278503	220717	215686	338505	425893	345335	190277	155830	306992	0.228	0.556	9						
	0	2882	2424	4198	0	720	0	0	1930	-0.22	0.723	5						
	34418	29157	58699	45260	45160	50335	95011	62057	38708	0.261	0.498	9						
	8573960	8173479	10389788	8751417	8667963	7503803	6258888	5240966	5047881	0.209	0.590	9						

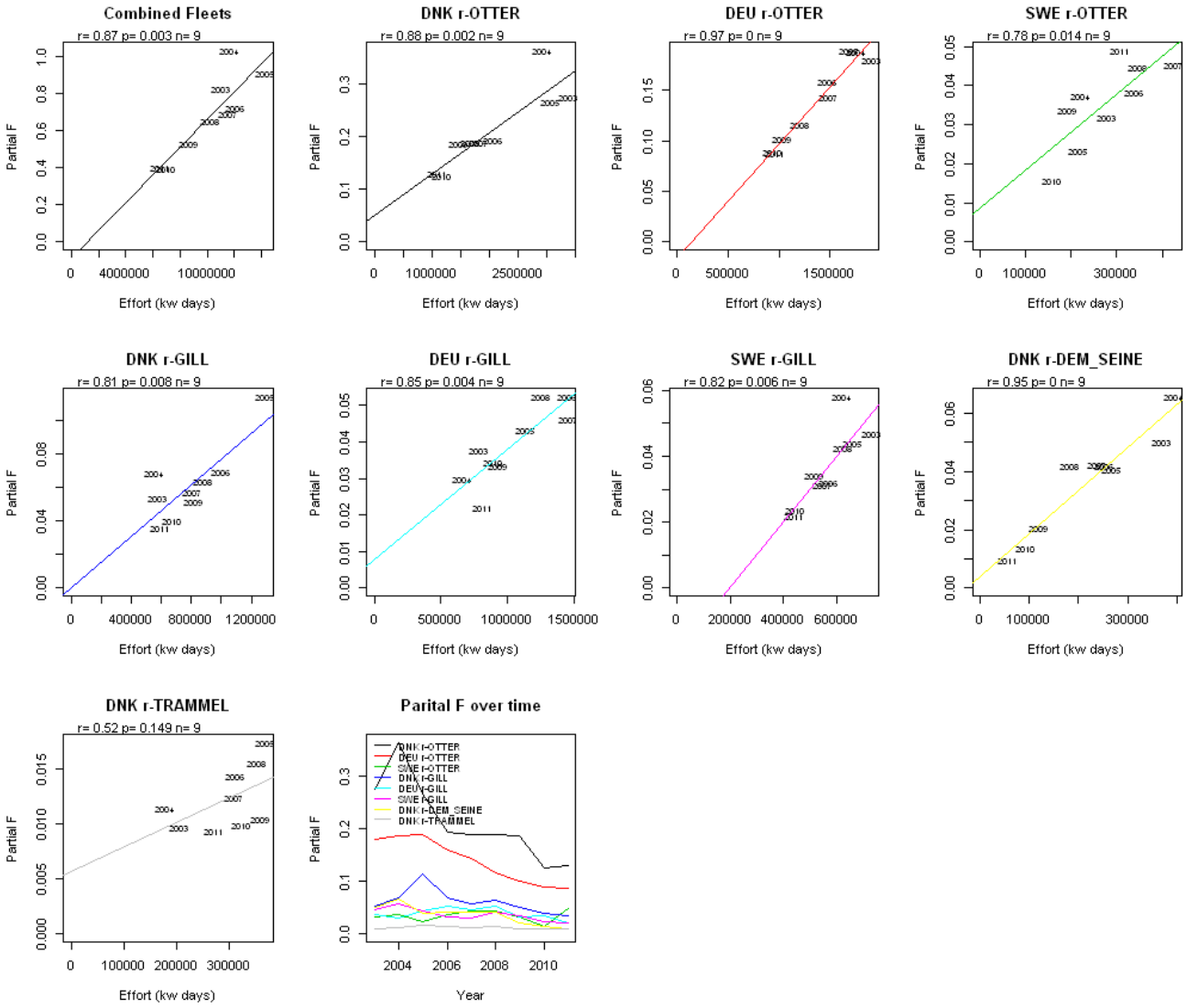

Fig. 5.1.14.1.1 Estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for catches of major fisheries. Note that the panel called combined fleets includes all regulated and unregulated fisheries and that the trends of the fisheries are not separated by special conditions.

5.1.14.2 Eastern Baltic cod in area B

The STECF EWG presents partial fishing mortalities by fisheries using regulated gears and Member States in relation to the estimated fishing mortality by ICES (2012) and the catches (s. Tab. 5.1.14.2.1), landings (s. Tab. 5.1.14.2.2) and discards volumes (s. Tab. 5.1.14.2.3), respectively. The full list of partial fishing mortalities of all fisheries can be downloaded from the EWG's web page. The anticipated trend in fishing mortality and fishing effort in units of kW days at sea as derived from the cod plan is also presented in upper parts of such tables. The sustainable exploitation target is defined as Fmsy=0.3. The trends in fishing effort in units of kWdays at sea of the relevant fisheries are also presented in Table 5.1.14.2.1-3. The presented parameters r (absolute value of Pearson's coefficient of correlation), numbers of points considered as well as a p value to quantify the statistical significance (≤0.05) allow conclusions about the quality of the correlation between the partial F and fisheries specific fishing effort. The trajectories between partial F and fishing effort in are shown in Fig. 5.1.14.2.1.

It can be concluded from the estimated F in 2012 (Table 5.1.14.2.1) that the stock is sustainably exploited and that the annual F reductions had been following the plan since 2008. According to Eero et al. (2012), the stock

recovery is due to increased productivity (recruitment) and improved control over catches. Discard mortality is generally low. The listed effort regulated fisheries do contribute by more than 79% to the total fishing mortality.

STECF EWG 12-12 notes that the correlations between the summed partial Fs for catch and landings of the many effort regulated fisheries and their estimated fishing efforts are highly significant and even significant for the discards.. The partial Fs of most of the Member States fisheries using regulated gears are also closely correlated with their specific effort estimates in kW days at sea. This indicates that effective fisheries management by fishing effort in units of kWdays at sea appears possible, also as an auxiliary measure to catch constraints and technical measures.

Table 5.1.14.2.1 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for catches of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.3											Reference year				
							2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F plan							0.9526	1.4457	0.9534	0.7801	0.5397	0.486	0.437	0.393	0.354	0.319
reduction F plan												-0.10	-0.10	-0.10	-0.10	-0.10
F estimated							0.9526	1.4457	0.9534	0.7801	0.5397	0.2656	0.2625	0.2826	0.2571	
reduction F estimated												-0.51	-0.01	0.08	-0.09	
F par estimated as F*landings or discards(fishery)/Catch(total)																
Regime	Area	Species	Country	Gear	Specon	catch.cate	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bal	B	COD	DEU	r-DEM_SE	none	catch	0.0000	0.0000	0.0000	0.0007	0.0006	0.0005	0.0017	0.0012	0.0017	
Bal	B	COD	DEU	r-GILL	none	catch	0.0006	0.0004	0.0030	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	
Bal	B	COD	DEU	r-LONGLIN	none	catch	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DEU	r-OTTER	none	catch	0.0170	0.0225	0.0270	0.0158	0.0069	0.0122	0.0116	0.0142	0.0042	
Bal	B	COD	DEU	r-PEL_TRA	none	catch	0.0000	0.0325	0.0100	0.0095	0.0095	0.0016	0.0047	0.0066	0.0104	
Bal	B	COD	DNK	r-DEM_SE	none	catch	0.0001	0.0000	0.0015	0.0009	0.0004	0.0000	0.0000	0.0000	0.0004	
Bal	B	COD	DNK	r-GILL	none	catch	0.0112	0.0127	0.0104	0.0083	0.0077	0.0052	0.0041	0.0027	0.0019	
Bal	B	COD	DNK	r-LONGLIN	none	catch	0.0040	0.0050	0.0064	0.0035	0.0019	0.0007	0.0005	0.0008	0.0006	
Bal	B	COD	DNK	r-OTTER	none	catch	0.0608	0.0732	0.0509	0.0758	0.0457	0.0345	0.0345	0.0510	0.0458	
Bal	B	COD	DNK	r-PEL_TRA	none	catch	0.0020	0.0083	0.0030	0.0060	0.0035	0.0001	0.0005	0.0003	0.0002	
Bal	B	COD	DNK	r-TRAMMI	none	catch	0.0001	0.0001	0.0000	0.0000	0.0004	0.0002	0.0003	0.0001	0.0000	
Bal	B	COD	EST	r-GILL	none	catch	0.0000	0.0000	0.0052	0.0034	0.0025	0.0010	0.0008	0.0000	0.0000	
Bal	B	COD	EST	r-OTTER	none	catch	0.0000	0.0000	0.0013	0.0004	0.0007	0.0000	0.0000	0.0031	0.0034	
Bal	B	COD	EST	r-PEL_TRA	none	catch	0.0000	0.0000	0.0017	0.0035	0.0048	0.0039	0.0024	0.0014	0.0031	
Bal	B	COD	LTU	r-GILL	none	catch	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0024	0.0033	0.0014	
Bal	B	COD	LTU	r-LONGLIN	none	catch	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	
Bal	B	COD	LTU	r-OTTER	none	catch	0.0000	0.0000	0.0004	0.0013	0.0067	0.0000	0.0113	0.0148	0.0133	
Bal	B	COD	LTU	r-PEL_TRA	none	catch	0.0000	0.0000	0.0021	0.0088	0.0170	0.0000	0.0011	0.0001	0.0002	
Bal	B	COD	LVA	r-GILL	none	catch	0.0409	0.0739	0.0364	0.0210	0.0182	0.0118	0.0122	0.0135	0.0085	
Bal	B	COD	LVA	r-OTTER	none	catch	0.0105	0.0136	0.0160	0.0190	0.0106	0.0105	0.0097	0.0144	0.0151	
Bal	B	COD	LVA	r-PEL_TRA	none	catch	0.0004	0.0075	0.0001	0.0019	0.0082	0.0002	0.0007	0.0000	0.0000	
Bal	B	COD	POL	r-GILL	none	catch	0.0000	0.1127	0.0604	0.0414	0.0214	0.0165	0.0182	0.0188	0.0146	
Bal	B	COD	POL	r-LONGLIN	none	catch	0.0000	0.0450	0.0306	0.0284	0.0135	0.0053	0.0028	0.0081	0.0054	
Bal	B	COD	POL	r-OTTER	none	catch	0.0000	0.1183	0.0946	0.0777	0.0383	0.0274	0.0303	0.0377	0.0347	
Bal	B	COD	POL	r-PEL_TRA	none	catch	0.0000	0.0253	0.0039	0.0126	0.0137	0.0002	0.0014	0.0002	0.0009	
Bal	B	COD	SWE	r-GILL	none	catch	0.0534	0.0615	0.0322	0.0187	0.0158	0.0118	0.0098	0.0058	0.0040	
Bal	B	COD	SWE	r-LONGLIN	none	catch	0.0126	0.0254	0.0162	0.0100	0.0053	0.0042	0.0034	0.0025	0.0018	
Bal	B	COD	SWE	r-OTTER	none	catch	0.0954	0.1584	0.0863	0.0744	0.0743	0.0373	0.0407	0.0470	0.0449	
Bal	B	COD	SWE	r-PEL_TRA	none	catch	0.0000	0.0109	0.0054	0.0221	0.0143	0.0011	0.0022	0.0006	0.0036	
Bal	B	COD	SWE	r-TRAMMI	none	catch	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Sum							0.3090	0.8072	0.5051	0.4653	0.3419	0.1862	0.2075	0.2483	0.2202	
check sum Fpar/F							0.3244	0.5583	0.5298	0.5965	0.6335	0.7011	0.7905	0.8786	0.8565	

Effort kW days running previous year baseline																								
							2003	2004	2005	2006	2007	2008	2009	2010	2011									
Effort plan/ TAC regulations not applicable as days at sea per vessel																								
reduction																								
Effort estimated (re							8064471	19081740	14201417	15348996	10446576	8703635	6763420	6989501	8068933									
												-0.17	-0.22	0.03	0.15									
EFFORT																						2003-2011		
kW days at sea							2003	2004	2005	2006	2007	2008	2009	2010	2011								r	p	n
							0	822	0	11756	9000	7782	19715	26908	38601								0.888	0.008	7
							11696	8290	43704	14527	11824	5048	6594	0	0								0.96	0.001	7
							10248	11771	15007	9881	11920	17580	12580	6600	2420								0.347	0.360	9
							334236	211999	280977	163096	80177	191198	220844	276398	108001								0.675	0.046	9
							0	182107	143688	141492	70379	16691	36135	61303	128870								0.782	0.022	8
							729	880	8630	9781	4380	0	0	0	7936								0.815	0.048	6
							255291	239932	243786	254043	189372	195012	172298	136131	128849								0.913	0.001	9
							212604	107249	127573	154932	85371	45181	63747	77366	75291								0.663	0.052	9
							1095043	774695	791940	1255868	568490	640633	610697	776245	1067163								0.647	0.059	9
							63296	49327	40022	95679	31103	1010	4030	3536	5080								0.742	0.022	9
							3108	2064	5598	7550	12631	5910	15546	3693	1185								0.819	0.007	9
							0	0	287824	253368	128268	40036	31107	0	0								0.968	0.007	5
							0	0	94896	5729	9503	0	0	96642	179832								0.888	0.044	5
							0	0	214426	355398	702922	703021	219177	114680	714754								0.835	0.020	7
							0	0	93187	55397	90686	128949	107267	104170	78123								0.22	0.635	7
							0	0	264	59543	35332	34991	6664	3956	5514								-0.614	0.143	7
							0	0	342503	192759	170844	382050	286887	332848	398109								0.181	0.698	7
							0	0	1100	89918	85447	61407	20974	1764	4420								0.751	0.052	7
							1397564	1471236	701180	596996	568781	539579	401856	361015	350477								0.909	0.001	9
							458330	322019	242532	350925	186093	229860	198632	218426	473943								0.281	0.465	9
							5065	114489	4122	29965	122803	10521	14473	0	0								0.999	0	7
							0	4339027	2361250	1992875	1556930	1079645	791231	788566	682079								0.981	0	8
							0	712715	691955	738832	410561	270046	412292	391897	324214								0.91	0.002	8
							0	5657875	3902889	4457610	2534977	1715576	1018609	1245924	1021206								0.942	0	8
							0	921668	193724	628134	440888	21895	36317	3424	24022								0.981	0	8
							1820884	1485621	1183969	1031157	833204	914404	811692	595833	519421								0.936	0	9
							316942	373136	345327	321205	162491	198545	200874	176489	208160								0.901	0.001	9
							2070339	1942010	1716974	1655822	1151533	1205260	1001145	1169421	1420549								0.776	0.014	9
							0	144639	121133	413844	178434	36859	40493	16200	99798								0.958	0	8
							9096	8169	1237	914	2232	4946	1544	66	916								0.823	0.006	9
							8064471	19081740	14201417	15348996	10446576	8703635	6763420	6989501	8068933								0.950	0.000	9

Table 5.1.14.2.2 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for landings of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

| 2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.3 | | | | | | | | | | | | Reference year | | | | | | | | | | | |

Table 5.1.14.2.3 The left part of the table lists estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for discards of fisheries using regulated gears. The right part of the table lists the respective trends in fishing effort (kW days at sea) as well as the correlation parameters between the partial Fs and the fisheries specific fishing effort. A complete set of all partial Fs of fisheries is downloadable from the meeting's internet site. The ratio of the sum of Fpar/F indicates the relative contribution of the partial Fs of all effort regulated gears to the overall F estimate of the stock.

2008 moving reference year annual F reductions by 10 percent until F<=Fmsy=0.3												Reference year					
							2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
F plan							0.9526	1.4457	0.9534	0.7801	0.5397	0.486	0.437	0.393	0.354	0.319
reduction F plan												-0.10	-0.10	-0.10	-0.10	-0.10
F estimated							0.9526	1.4457	0.9534	0.7801	0.5397	0.2656	0.2625	0.2826	0.2571	
reduction F estimated												-0.51	-0.01	0.08	-0.09	
F par estimated as F*landings or discards(fishery)/Catch(total)																
Regime	Area	Species	Country	Gear	Specon	catch.cate	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bal	B	COD	DEU	r-DEM_SE	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DEU	r-GILL	none	discards	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DEU	r-LONGLIN	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DEU	r-OTTER	none	discards	0.0009	0.0008	0.0007	0.0024	0.0011	0.0007	0.0013	0.0013	0.0005	
Bal	B	COD	DEU	r-PEL_TRA	none	discards	0.0000	0.0005	0.0004	0.0014	0.0009	0.0001	0.0004	0.0002	0.0014	
Bal	B	COD	DNK	r-DEM_SE	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DNK	r-GILL	none	discards	0.0002	0.0003	0.0003	0.0003	0.0005	0.0002	0.0001	0.0002	0.0000	
Bal	B	COD	DNK	r-LONGLIN	none	discards	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	
Bal	B	COD	DNK	r-OTTER	none	discards	0.0009	0.0014	0.0012	0.0042	0.0012	0.0007	0.0007	0.0012	0.0000	
Bal	B	COD	DNK	r-PEL_TRA	none	discards	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	DNK	r-TRAMM	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	EST	r-GILL	none	discards	0.0000	0.0000	0.0002	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	EST	r-OTTER	none	discards	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0003	0.0004	
Bal	B	COD	EST	r-PEL_TRA	none	discards	0.0000	0.0000	0.0000	0.0005	0.0004	0.0004	0.0002	0.0000	0.0005	
Bal	B	COD	LTU	r-GILL	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007	0.0000	
Bal	B	COD	LTU	r-LONGLIN	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	LTU	r-OTTER	none	discards	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0010	0.0012	0.0005	
Bal	B	COD	LTU	r-PEL_TRA	none	discards	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Bal	B	COD	LVA	r-GILL	none	discards	0.0010	0.0031	0.0012	0.0008	0.0019	0.0004	0.0004	0.0012	0.0004	
Bal	B	COD	LVA	r-OTTER	none	discards	0.0005	0.0005	0.0004	0.0012	0.0004	0.0009	0.0007	0.0016	0.0015	
Bal	B	COD	LVA	r-PEL_TRA	none	discards	0.0000	0.0002	0.0000	0.0003	0.0008	0.0000	0.0001	0.0000	0.0000	
Bal	B	COD	POL	r-GILL	none	discards	0.0000	0.0033	0.0018	0.0015	0.0013	0.0004	0.0007	0.0013	0.0007	
Bal	B	COD	POL	r-LONGLIN	none	discards	0.0000	0.0005	0.0004	0.0000	0.0000	0.0000	0.0002	0.0009	0.0001	
Bal	B	COD	POL	r-OTTER	none	discards	0.0000	0.0059	0.0060	0.0078	0.0050	0.0016	0.0025	0.0033	0.0039	
Bal	B	COD	POL	r-PEL_TRA	none	discards	0.0000	0.0004	0.0000	0.0002	0.0002	0.0000	0.0000	0.0000	0.0001	
Bal	B	COD	SWE	r-GILL	none	discards	0.0013	0.0008	0.0010	0.0006	0.0009	0.0004	0.0005	0.0002	0.0002	
Bal	B	COD	SWE	r-LONGLIN	none	discards	0.0003	0.0003	0.0003	0.0000	0.0000	0.0000	0.0002	0.0003	0.0001	
Bal	B	COD	SWE	r-OTTER	none	discards	0.0136	0.0089	0.0109	0.0148	0.0143	0.0038	0.0051	0.0040	0.0062	
Bal	B	COD	SWE	r-PEL_TRA	none	discards	0.0000	0.0005	0.0000	0.0044	0.0022	0.0002	0.0002	0.0000	0.0008	
Bal	B	COD	SWE	r-TRAMM	none	discards	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Sum							0.0188	0.0275	0.0253	0.0407	0.0315	0.0098	0.0144	0.0180	0.0173	
check sum Fpar/F							0.0197	0.019	0.0265	0.0522	0.0584	0.0369	0.0549	0.0637	0.0673	

Effort kW days running previous year baseline														
	2003	2004	2005	2006	2007	2008	2009	2010	2011					
Effort plan/ TAC regulations not applicable as days at sea per vessel														
reduction														
Effort estimated (re	8064471	19081740	14201417	15348996	10446576	8703635	6763420	6989501	8068933					
						-0.17	-0.22	0.03	0.15					
EFFORT										2003-2011				
kW days at sea	2003	2004	2005	2006	2007	2008	2009	2010	2011	r	p	n		
	0	822	0	11756	9000	7782	19715	26908	38601	NA	NA	7		
	11696	8290	43704	14527	11824	5048	6594	0	0	0.931	0.002	7		
	10248	11771	15007	9881	11920	17580	12580	6600	2420	NA	NA	9		
	334236	211999	280977	163096	80177	191198	220844	276398	108001	-0.065	0.868	9		
	0	182107	143688	141492	70379	16691	36135	61303	128870	0.457	0.255	8		
	729	880	8630	9781	4380	0	0	0	7936	NA	NA	6		
	255291	239932	243786	254043	189372	195012	172298	136131	128849	0.417	0.265	9		
	212604	107249	127573	154932	85371	45181	63747	77366	75291	0.479	0.192	9		
	1095043	774695	791940	1255868	568490	640633	610697	776245	1067163	0.491	0.180	9		
	63296	49327	40022	95679	31103	1010	4030	3536	5080	0.184	0.636	9		
	3108	2064	5598	7550	12631	5910	15546	3693	1185	NA	NA	9		
	0	0	287824	253368	128268	40036	31107	0	0	0.661	0.225	5		
	0	0	94896	5729	9503	0	0	96642	179832	0.84	0.075	5		
	0	0	214426	355398	702922	703021	219177	114680	714754	0.797	0.032	7		
	0	0	93187	55397	90686	128949	107267	104170	78123	0.224	0.629	7		
	0	0	264	59543	35332	34991	6664	3956	5514	NA	NA	7		
	0	0	342503	192759	170844	382050	286887	332848	398109	0.193	0.678	7		
	0	0	1100	89918	85447	61407	20974	1764	4420	-0.406	0.367	7		
	1397564	1471236	701180	596996	568781	539579	401856	361015	350477	0.628	0.07	9		
	458330	322019	242532	350925	186093	229860	198632	218426	473943	0.256	0.506	9		
	5065	114489	4122	29965	122803	10521	14473	0	0	0.776	0.04	7		
	0	4339027	2361250	1992875	1556930	1079645	791231	788566	682079	0.942	0	8		
	0	712715	691955	738832	410561	270046	412292	391897	324214	0.154	0.715	8		
	0	5657875	3902889	4457610	2534977	1715576	1018609	1245924	1021206	0.808	0.015	8		
	0	921668	193724	628134	440888	21895	36317	3424	24022	0.929	0.001	8		
	1820884	1485621	1183969	1031157	833204	914404	811692	595833	519421	0.865	0.003	9		
	316942	373136	345327	321205	162491	198545	200874	176489	208160	0.428	0.25	9		
	2070339	1942010	1716974	1655822	1151533	1205260	1001145	1169421	1420549	0.539	0.134	9		
	0	144639	121133	413844	178434	36859	40493	16200	99798	0.939	0.001	8		
	9096	8169	1237	914	2232	4946	1544	66	916	NA	NA	9		
	8064471	19081740	14201417	15348996	10446576	8703635	6763420	6989501	8068933	0.695	0.038	9		

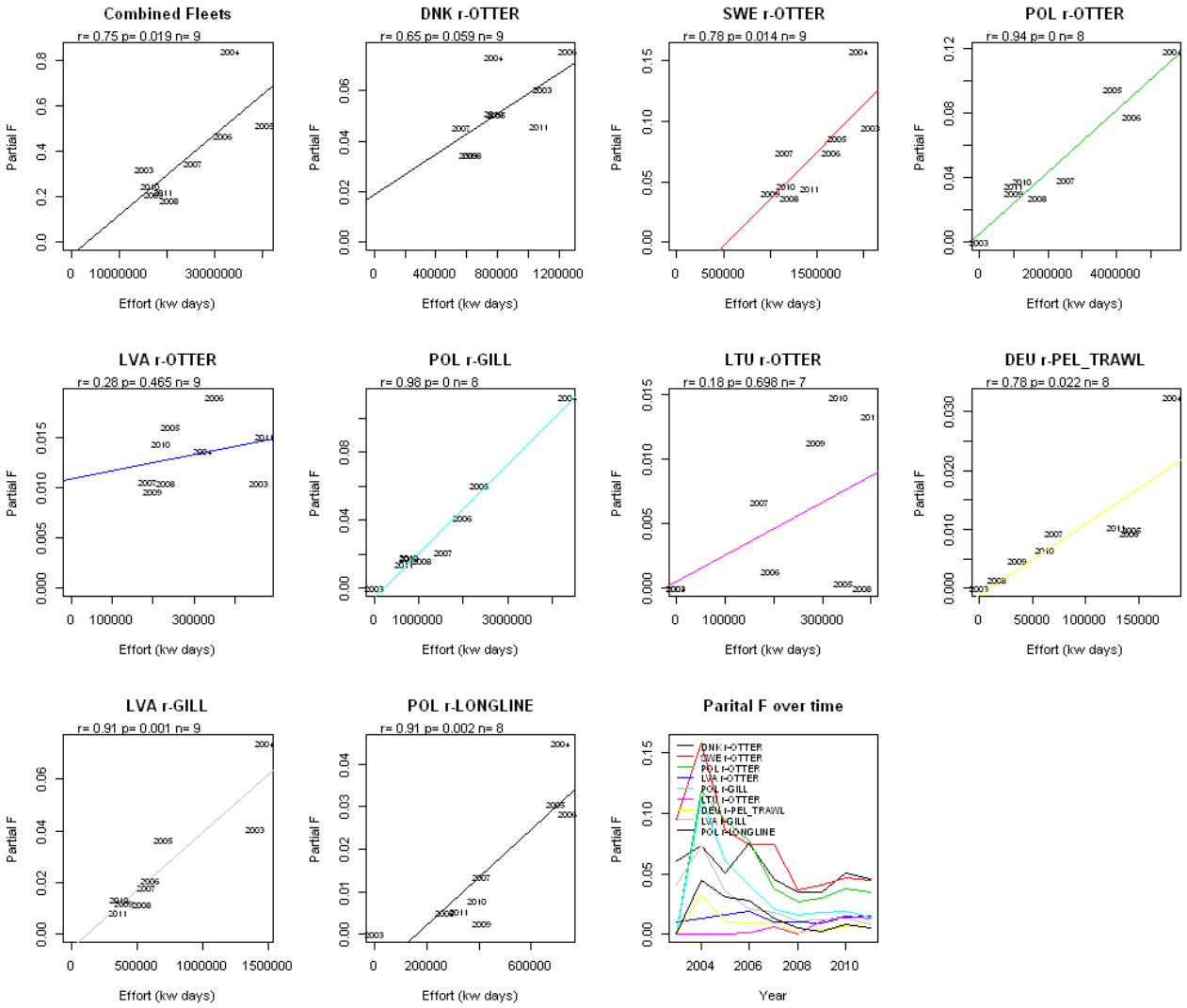

Fig. 5.1.14.2.1 Estimated F trajectories from the management plan and the ICES 2012 assessment, as well as partial Fs for catches of major fisheries. Note that the panel called combined fleets includes all regulated and unregulated fisheries and that the trends of the fisheries are not separated by special conditions.

5.1.15 ToR 11 Spatio-temoral pattern in standardized catchability indices for cod

The STECF EWG 12-06 and 12-12 discussed this task, elaborated and applied a specific method described in section 4.9 of the present report. STECF 12-12 performed the analyses using DCF data from the 2012 DCF data call to support fishing effort regime evaluations and Baltic Sea survey data (BITS) 2004-2011, i.e. station data and catch data for the years 2004-2011 and the quarters 1 and 4, covering the late autumn and winter months in any given year. Only hauls assigned valid and with haul duration equal or longer the 20 min. were considered. Cod catches were standardized to kg/hour.

The data base of scientific survey data is provided at ICES DATRAS web page: http://datras.ices.dk/Data_products/Download/Download_Data_public.aspx

Figure 5.1.15.1 displays the cod CPUE from the BITS survey in 2011, and averaged over the years 2004 to 2011. In 2011, it appears that the cod distribuion in the Baltic Sea is more truncated towards the central and southern Baltic Sea than observed on average.

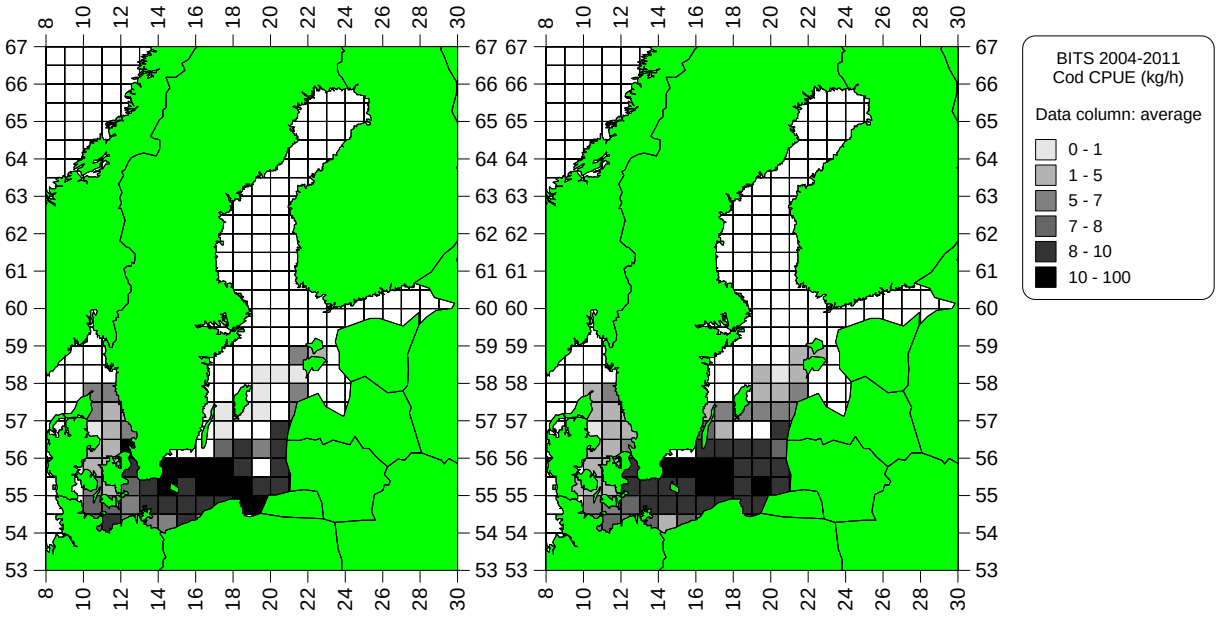

Fig. 5.1.15.1. Average annual Baltic Sea BITS Q1-4 CPUE indices (kg/hours) per rectangle for cod in 2011 (left panel) and averaged over 2004-2011 (right panel).

A comparison of the estimated cod catches (landings and estimated discards) per rectangle in 2011 and averaged for the years 2003-2011 leads to the similar effect of a more truncated cod distribution in the central and southern Baltic in 2011. STECF EWG 12-12 notes that the cod catches of the rectangles, in which the three temporary closed areas 1-3 (Council Regulation (EC) No 1098/2007) are located, appear not significantly reduced, as compared with landings of the surrounding rectangles.

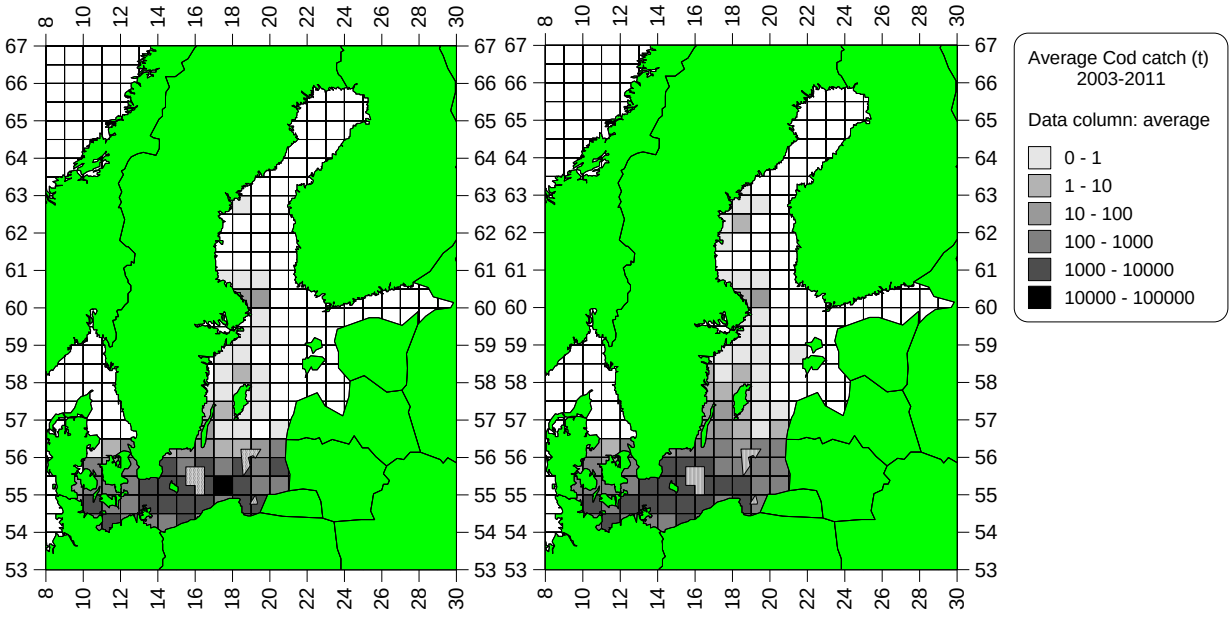

Fig. 5.1.15.2. Annual cod catches of effort regulated gear groups per rectangle in 2011 (left panel) and averaged for the period 2003-2011 (right panel). Three temporary closed areas are shown as dotted areas.

The following Fig. 5.1.15.3 displays the spatio-temporal patterns in fishing effort in units of hours fished of all regulated gears, again for 2011 and averaged for the period 2003-2011. Also the fishing effort seems to follow the trend of a recent concentration towards the central and southern Baltic Sea. STECF EWG 12-12 notes that the fishing effort in units of trawled hours of the rectangles, in which the three temporary closed areas 1-3 (Council Regulation (EC) No 1098/2007) are located, appear not significantly reduced, as compared with fishing effort deployed in the surrounding rectangles.

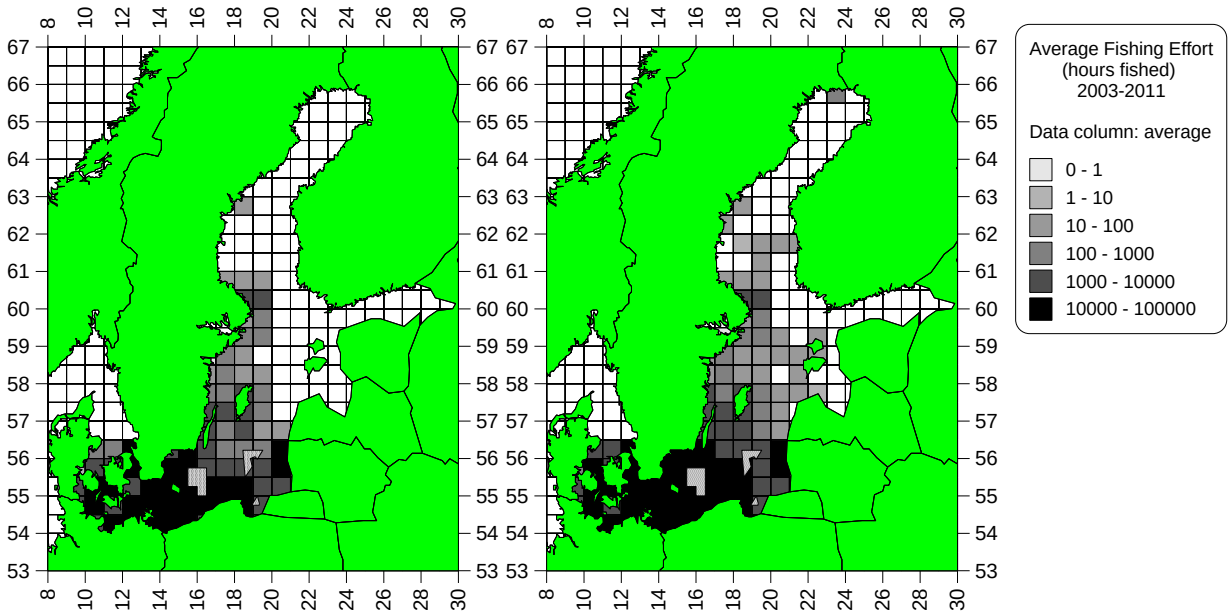

Fig. 5.1.15.3. Annual fishing effort (hours fished) of effort regulated gear groups per rectangle in 2011 (left panel) and averaged for the period 2003-2011 (right panel). Three temporary closed areas are shown as dotted areas.

STECF EWG 12-12 notes that the resulting patterns of catchability in these specific management areas represent case studies and do not form the basis for any management advice. The resulting spatio-temporal patterns in cod catchability indices are plotted in Fig. 5.1.15.4. STECF EWG 12-12 notes that the catchability indices appear more evenly distributed in 2011 and averaged for 2004-2011 than the survey abundance indices (CPUE rates from survey) and the catches as well as fishing effort. STECF EWG 12-12 notes that the estimated catchability of the rectangles, in which the three temporary closed areas 1-3 (Council Regulation (EC) No 1098/2007) are located, appear not significantly reduced, as compared with catchabilty of the surrounding rectangles.

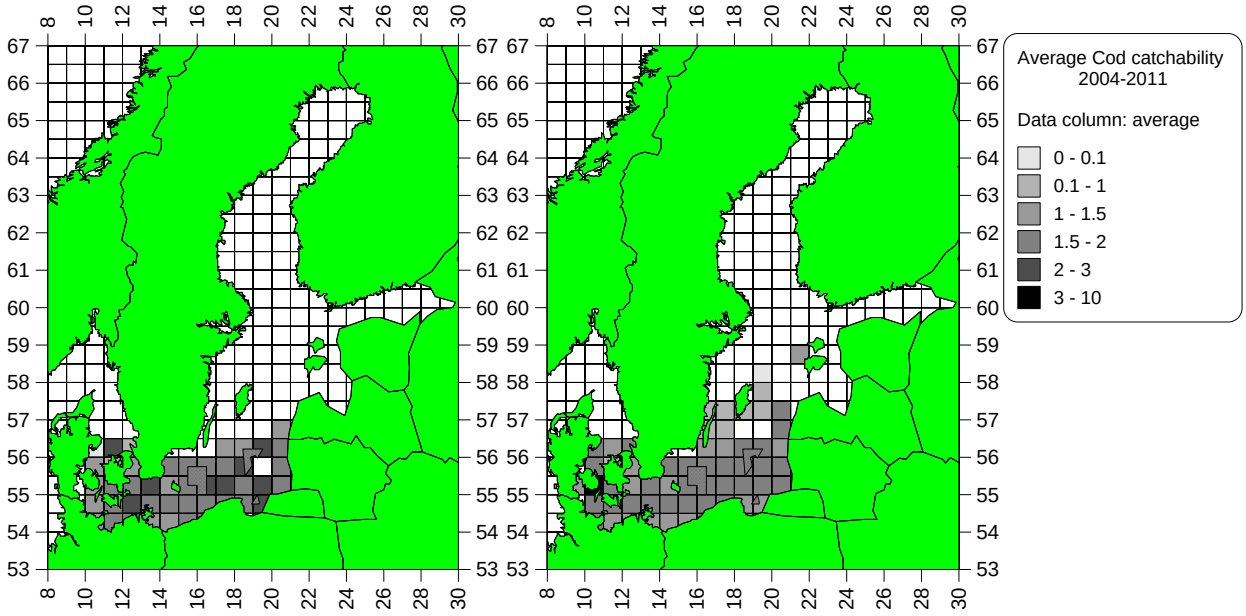

Fig. 5.1.15.4. Cod catchability generated by regulated gear groups per rectangle in 2011 (left panel) and averaged for the period 2004-2011 (right panel). Three temporary closed areas are shown as dotted areas. STECF EWG 12-12 notes that the resulting patterns of catchability in these specific management areas represent case studies and do not form the basis for any management advice.

5.2 Kattegat effort regime evaluation in the context of Annex IIA to Council Regulation (EC) No 57/2011)

5.2.1 ToR 1.a Fishing effort in kWdays, GTdays and number of vessels by Member State and fisheries

Trends in effort by the new cod plan gear groups and by country are shown in Table (5.2.2.1). The total effort in the Kattegat decreased by 36% between 2005 and 2011. The total regulated effort has decreased by 44% since 2005 and by 16% between 2010 and 2011. Table (5.2.2.2) summarises the aggregated effort by regulated cod plan gear categories and derogations. TR2 dominates the effort in recent years. Table 5.2.2.3 lists the effort deployed by non-regulated gears, respectively.

Table 5.2.2.1 Kattegat: Trend in nominal effort (kW*days at sea) by regulated gear group and country. 2005-2011. The gear category TR2 does not include effort carried out under the derogation CPart11 (from 2009 and onwards) or IIA83b (2005-2008).

REG AREA	REG GEAR	COUNTRY	2005	2006	2007	2008	2009	2010	2011	rel 2005	rel 2010
3a	GN1	DEU	26827	38486	39725	31562	23156	19526	21484	0.80	1.10
		DNK	130267	104450	72977	66270	83095	66976	46211	0.35	0.69
		SWE	9609	14748	14949	32697	33120	32270	27481	2.86	0.85
	GT1	DNK	28221	24922	12119	11758	23209	14225	11408	0.40	0.80
		SWE	12833	19178	34170	29266	17518	26612	25205	1.96	0.95
	LL1	DNK		220			406		221		
		SWE	10684	27478	37856	25234					
	TR1	DEU	4985	5262	5526	1964					
		DNK	205850	193619	186575	158868	104096	69037	48671	0.24	0.70
		SWE	24870	5160	19799	57592	6985	13626	1006	0.04	0.07
	TR2	DEU	7505	10318	35338	38716	19918	30730	13670	1.82	0.44
		DNK	2547492	2254222	2026307	2148493	2214066	2385563	1998979	0.78	0.84
		SWE	932268	1062871	1041966	920320	436355	284594	271686	0.29	0.95
	TR3	DEU									
		DNK	485616	358274	306240	152411	95897	36383	25572	0.05	0.70
		SWE			1470		1148				
Total			4427027	4119208	3835017	3675151	3058969	2979542	2491594	0.56	0.84

Table 5.2.2.2 Kattegat: Trend in nominal effort (kW*days at sea) by regulated gear group and derogation 2005-2011. Note that all Danish and German TR2 effort is under the TR2 CPart13 derogation from 2010 and onwards, meaning that all TR2 'none' effort from 2010 is Swedish.

AREA	GEAR	SPECON	2005	2006	2007	2008	2009	2010	2011	rel. 2005	rel. 2010
3a	GN1	none	166703	157684	127651	130529	139371	118772	95176	0.57	0.80
	GT1	none	41054	44100	46289	41024	40727	40837	36613	0.89	0.90
	LL1	none	10684	27698	37856	25234	406		221	0.02	
	TR1	none	235705	204041	211900	218424	111081	82663	49677	0.21	0.60
	TR2	CPART13						2405583	2003159		0.83
		none	3487265	3327411	3103611	3107529	2670339	295304	281176	0.08	0.95
	TR3	none	485616	358274	307710	152411	97045	36383	25572	0.05	0.70
Total			4427027	4119208	3835017	3675151	3058969	2979542	2491594	0.56	0.84

Table 5.2.2.3 Trend in nominal effort (kW*days at sea) of unregulated gears in Kattegat 2005-2011. Sweden is the only country using the derogation Cpart11/IIIA83b.

AREA	GEAR	SPECON	2005	2006	2007	2008	2009	2010	2011	rel 2005	rel 2010
3a	TR2	CPART11					415194	482432	426638		0.88
		IIA83B	113989	165425	233076	307336				0.00	
	DEM_SEINE	none	354								
	DREDGE	none	33713	39802	50977	55259	36768	36517	51741	1.53	1.42
	none	none	8924	17261	15766	24584	47342	41620	21348	2.39	0.51
	OTTER	none	189643	258570	200213	157752	232709	75844	30403	0.16	0.40
	PEL_SEINE	none	25640	52976	32560	16157	11000	19876	19160	0.75	0.96
	PEL_TRAWL	none	448473	374703	349489	192363	378195	300799	329370	0.73	1.09
	POTS	none	65450	75311	86516	75233	64289	29897	32929	0.50	1.10
Total			886186	984048	968597	828684	1185497	986985	911589	1.03	0.92

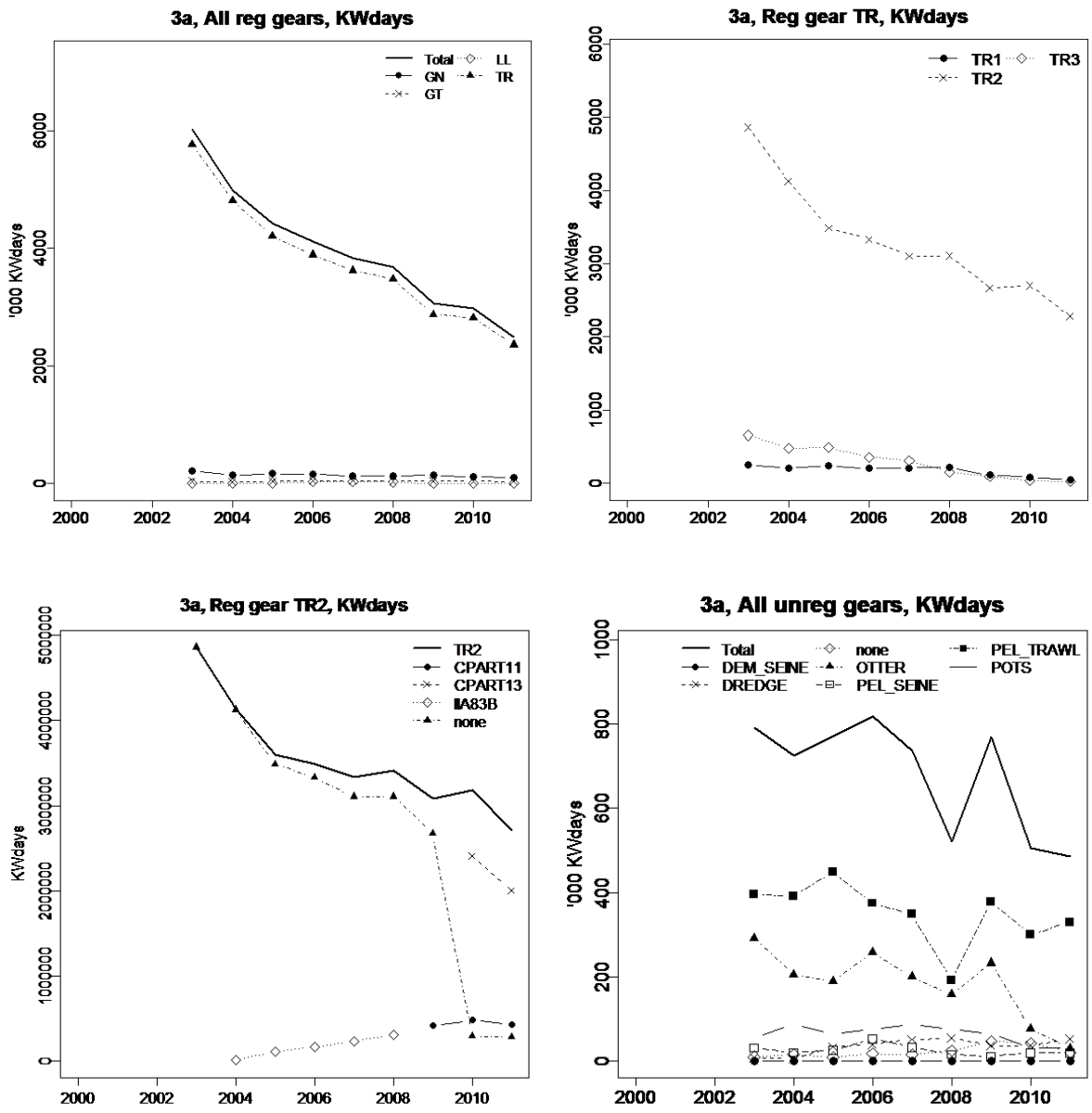

Figure 5.2.2.1. Kattegat: Top left: Trend in nominal effort (Kw *days at sea) by regulated gear types, 2000-2011. TR=Demersal trawl, BT=Beam trawl, GN=Gillnet, GT=Trammel net, LL=Longline. Note that the derogations CPart11 and IIA83b are not included in the TR gear category since they are considered unregulated.

Top right: effort by gear types within gear group TR; TR1=mesh size ≥100mm; TR2=mesh size ≥70, ≤100mm; TR3 ≥16, ≤32 mm. The derogations CPart11 and IIA83b are not included in the TR2 category.

Bottom left: Effort by derogation within gear type TR2. Note that the derogations CPart11 and IIA83b are included here for comparison with the regulated TR2 gear categories.

Bottom right: effort by unregulated gear categories. CPart11 and IIA83b are not shown here but are shown in the bottom left figure for comparison with the regulated TR2 gear categories.

All Danish and German TR2 'none' effort from 2010 onwards are used under the provisions of article 13 of the cod plan. The Swedish TR2 effort is in the TR2 none and TR2 CPart11. The total TR2 effort (top right figure) decreased rapidly from 2003 to 2005. From 2006 and onwards the effort decreased more slowly.

The effort deployed in Gross tonnage days (GTdays) and number of vessels are not described in this report but can be found on the STECF EWG 12-12 website under the Final Report section: : http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

5.2.2 ToR 1.b and c Catches (landings and discards) of cod and non-cod species in weight and numbers at age by fisheries

STECF EWG 12-12 presents the requested cod in weight by fisheries. Age specific data are available on the internet page of the STECF EWG 12-12: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12..

Table 5.2.2.1. Kattegat landings (L), discards (D) and discard rate (R) of cod (COD), Nephrops (NEP), plaice (PLE), sole (SOL) and whiting (WGH) by gear category and derogation 2005-2011, including the unregulated CPart11 and IIA83b. Note that there are no Danish discard data for NEP, PLE, SOL and WGH reported on the derogation CPart13 in 2010 in the table below. For information, the Danish discard data for TR2 Cpart 13 in 2010 was as follows: Nephrops (NEP)=721 tonnes, Plaice (PLE)=304 tonnes, Sole (Sol)=10 tonnes, Whiting (WHG)=173 tonnes.

ANNEX	SPECIES	AREA	GEAR	SPECON	2005 L	2005 D	2005 R	2006 L	2006 D	2006 R	2007 L	2007 D	2007 R	2008 L	2008 D	2008 R	2009 L	2009 D	2009 R	2010 L	2010 D	2010 R	2011 L	2011 D	2011 R
IIa	COD	3a	GN1	none	26	0	0	25	0	0	28	0	0	45	0	0	13	0	0	10	0	0	3	0	0
IIa	COD	3a	GT1	none	7	0	0	3	0	0	4	0	0	3	0	0	1	0	0	1	0	0	0	0	0
IIa	COD	3a	LL1	none	1	0	0	3	0	0	0	0	0	14	0	0			0			0			0
IIa	COD	3a	TR1	none	117	57	0.33	49	9	0.16	83	47	0.36	32	4	0.11	17	12	0.41	4	0	0	1	0	0
IIa	COD	3a	TR2	CPART11			0			0			0			0	0	13	1	0	10	1	0	3	1
IIa	COD	3a	TR2	CPart13			0			0			0			0			0	82	71	0.46	78	35	0.31
IIa	COD	3a	TR2	IIA83b	0	3	1	0	3	1	0	6	1	0	2	1			0			0			0
IIa	COD	3a	TR2	none	630	470	0.43	629	661	0.51	452	396	0.47	299	165	0.36	121	75	0.38	27	10	0.27	38	22	0.37
IIa	COD	3a	TR3	none	14	0	0	36	0	0	7	0	0	7	0	0	0	0	0			0	0	0	0
IIa	NEP	3a	GN1	none	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0
IIa	NEP	3a	GT1	none	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
IIa	NEP	3a	TR1	none	6	0	0	5	0	0	29	226	0.89	63	166	0.72	17	12	0.41	35	33	0.49	20	0	0
IIa	NEP	3a	TR2	CPART11			0			0			0			0	241	216	0.47	264	192	0.42	202	122	0.38
IIa	NEP	3a	TR2	CPart13			0			0			0			0			0	1697	0	0	1091	197	0.15
IIa	NEP	3a	TR2	IIA83b	46	37	0.45	51	41	0.45	95	75	0.44	129	129	0.5			0			0			0
IIa	NEP	3a	TR2	none	1424	1023	0.42	1194	1006	0.46	1583	1435	0.48	1780	1781	0.5	1627	918	0.36	133	120	0.47	101	67	0.4
IIa	NEP	3a	TR3	none	1	0	0	2	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0
IIa	PLE	3a	GN1	none	74	0	0	70	0	0	62	0	0	59	0	0	26	0	0	21	0	0	10	0	0
IIa	PLE	3a	GT1	none	36	0	0	44	0	0	28	0	0	39	0	0	6	0	0	10	0	0	6	0	0
IIa	PLE	3a	LL1	none			0			0			0			0			0			0			0
IIa	PLE	3a	TR1	none	392	175	0.31	468	184	0.28	434	225	0.34	272	99	0.27	181	71	0.28	54	183	0.77	59	0	0
IIa	PLE	3a	TR2	CPART11			0			0			0			0	3	37	0.92	3	26	0.9	1	30	0.97
IIa	PLE	3a	TR2	CPart13			0			0			0			0			0	249	0	0	197	253	0.56
IIa	PLE	3a	TR2	IIA83b	0	8	1	0	9	1	1	17	0.94	2	20	0.91			0			0			0
IIa	PLE	3a	TR2	none	479	462	0.49	675	398	0.37	572	566	0.5	467	261	0.36	287	316	0.52	35	94	0.73	14	58	0.81
IIa	PLE	3a	TR3	none	7	0	0	1	0	0	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0
IIa	SOL	3a	GN1	none	107	0	0	101	0	0	64	0	0	57	0	0	71	0	0	57	0	0	60	0	0
IIa	SOL	3a	GT1	none	17	0	0	16	0	0	15	0	0	16	0	0	14	0	0	21	0	0	20	0	0
IIa	SOL	3a	TR1	none	9	0	0	17	0	0	9	5	0.36	7	1	0.12	2	0	0	2	0	0	1	0	0
IIa	SOL	3a	TR2	CPART11			0			0			0			0	1	8	0.89	2	2	0.5	2	3	0.6
IIa	SOL	3a	TR2	CPart13			0			0			0			0			0	130	0	0	148	6	0.04
IIa	SOL	3a	TR2	IIA83b	1	0	0	0	0	0	1	0	0	1	1	0.5			0			0			0
IIa	SOL	3a	TR2	none	244	26	0.1	264	17	0.06	209	15	0.07	211	16	0.07	166	10	0.06	6	0	0	4	0	0
IIa	SOL	3a	TR3	none	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IIa	WHG	3a	GN1	none	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0			0
IIa	WHG	3a	GT1	none	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0
IIa	WHG	3a	LL1	none	0	0	0	0	0	0	0	0	0						0			0			0
IIa	WHG	3a	TR1	none	3	25	0.89	0	0	0	2	13	0.87	2	8	0.8	1	3	0.75	0	1	1	0	0	0
IIa	WHG	3a	TR2	CPART11			0			0			0			0	1	17	0.94	1	13	0.93	1	18	0.95
IIa	WHG	3a	TR2	CPart13			0			0			0			0			0	8	0	0	7	84	0.92
IIa	WHG	3a	TR2	IIA83b	1	1	0.5	1	1	0.5	1	2	0.67	1	12	0.92			0			0			0
IIa	WHG	3a	TR2	none	66	832	0.93	73	770	0.91	65	659	0.91	42	384	0.9	23	163	0.88	7	38	0.84	5	35	0.88
IIa	WHG	3a	TR3	none	431	0	0	333	0	0	173	0	0	170	0	0	54	0	0	16	0	0	13	0	0

Detailed information by country is downloadable and provided on the STECF EWG 12-12 website: Http://stecf.jrc.ec.europa.eu/web/stecf/ewg12

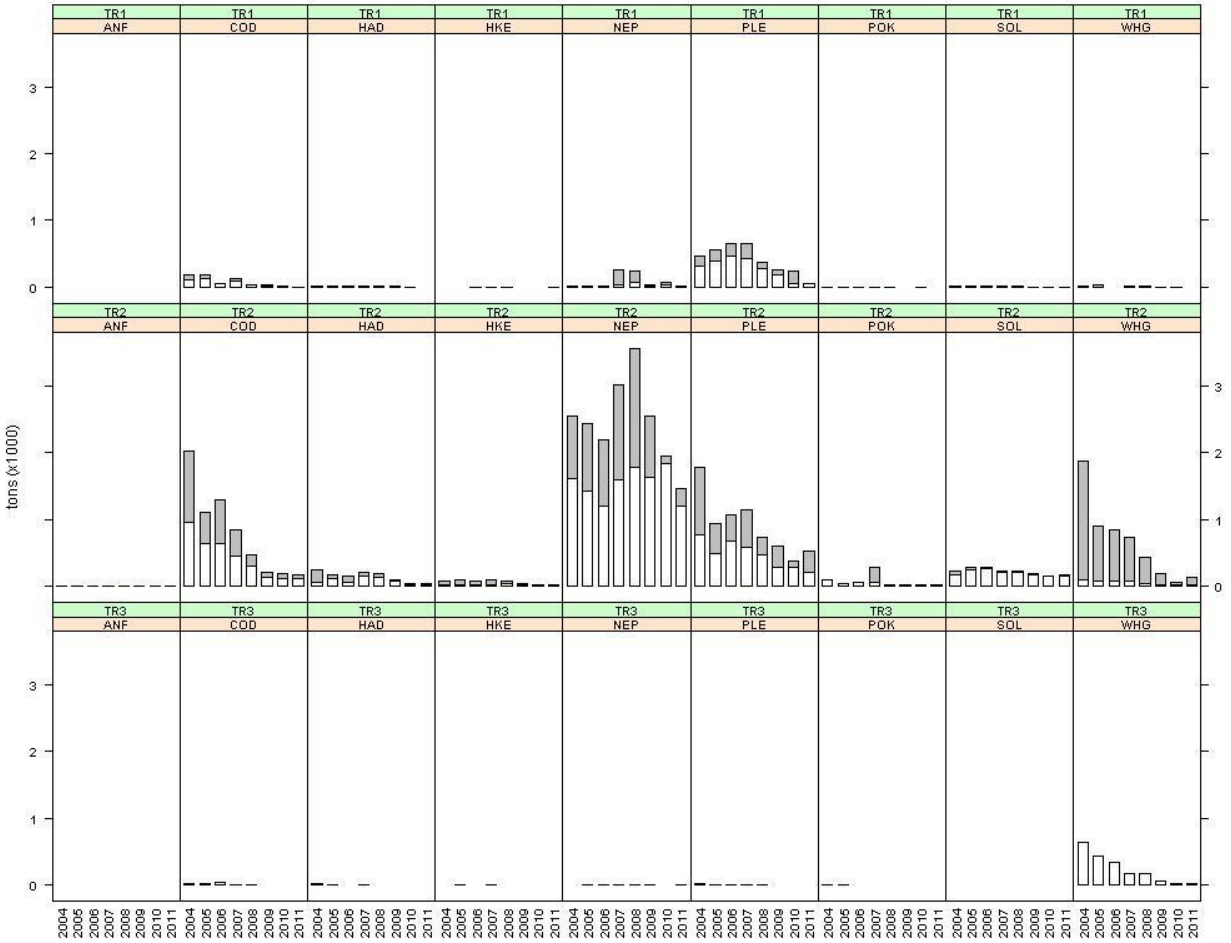

Figure 5.2.2.2. Landings (white) and discards (grey) in tonnes by the regulated gear categories TR1, TR2 and TR3 and by species in Kattegat 2004-2011. Note that there are no Danish discards other than for cod in the TR2 gear category 2010 in this figure. For information, the Danish discard data for TR2 in 2010 was as follows: Nephrops (NEP)=721 tonnes, Plaice (PLE)=304 tonnes, Sole (Sol)=10 tonnes, Whiting (WHG)=173 tonnes. The derogations CPart11 and IIA83b are not included in the TR2 gear category above.

Table 5.2.2.2 Unregulated gears, landings (t) of cod 2005-2011. Landings for CPart11 and IIA83b are not shown in this table, since they are shown in table 5.2.2.1.

ANNEX	SPECIES	REG_AREA	REG_GEAR	SPECON	COUNTRY	2005 L	2006 L	2007 L	2008 L	2009 L	2010 L	2011 L
IIa	COD	3a	DEM_SEINE	none	DNK	0	0	0	0	0	0	0
IIa	COD	3a	none	none	DNK	6	10	1	0	0	0	0
IIa	COD	3a	none	none	SWE	0	0	0	0	0	0	0
IIa	COD	3a	OTTER	none	DNK	7	14	1	0	0	0	0
IIa	COD	3a	OTTER	none	SWE	5	4	5	4	9	3	1
IIa	COD	3a	PEL_TRAWL	none	DNK	5	15	1	0	0	0	0
IIa	COD	3a	PEL_TRAWL	none	SWE	0	0	4	0	0	0	0
IIa	COD	3a	POTS	none	DNK	0	0	0	0	0	0	0
IIa	COD	3a	POTS	none	SWE	0	0	0	0	0	0	0

Table 5.2.2.3. Unregulated gears, landings of plaice 2005-2011. Landings for CPart11 and IIA83b are not shown in this table, since they are shown in table 5.2.2.1.

ANNEX	SPECIES	REG_AREA	REG_GEAR	SPECON	COUNTRY	2005 L	2006 L	2007 L	2008 L	2009 L	2010 L	2011 L
IIa	PLE	3a	DEM_SEINE	none	DNK	1	0	0	0	0	0	0
IIa	PLE	3a	none	none	DNK	1	4	7	2	1	2	0
IIa	PLE	3a	OTTER	none	DEU	0	0	0	0	0	0	0
IIa	PLE	3a	OTTER	none	DNK	1	4	2	1	0	0	0
IIa	PLE	3a	OTTER	NONE	SWE	0	1	1	1	3	2	0
IIa	PLE	3a	PEL_TRAWL	none	DNK	0	0	0	0	0	0	0
IIa	PLE	3a	POTS	none	DNK	0	0	0	0	0	0	0

Table 5.2.2.4 Unregulated gears, landings of sole 2005-2011. Landings for CPart11 and IIA83b are not shown in this table, since they are shown in Table 5.2.2.1.

ANNEX	SPECIES	REG_AREA	REG_GEAR	SPECON	COUNTRY	2005 L	2006 L	2007 L	2008 L	2009 L	2010 L	2011 L
IIa	SOL	3a	DEM_SEINE	none	DNK	0	0	0	0	0	0	0
IIa	SOL	3a	none	none	DNK	2	2	3	1	0	0	0
IIa	SOL	3a	OTTER	none	DEU	0	0	0	0	0	0	0
IIa	SOL	3a	OTTER	none	DNK	0	1	0	0	0	0	0
IIa	SOL	3a	OTTER	none	SWE	0	0	0	0	0	0	0
IIa	SOL	3a	PEL_TRAWL	none	DNK	0	0	0	0	0	0	0
IIa	SOL	3a	POTS	none	DNK	0	0	0	0	0	0	0

5.2.3 ToR 1.d CPUE and LPUE of cod by fisheries and Member States

STECF EWG 12-12 presents the estimated trends in CPUE and LPUE for cod, plaice and sole in figures and tables below. CPUE and LPUE by gear and Member State is not presented in this report but can be found on the JRC website: http://stecf.jrc.ec.europa.eu/web/stecf/ewg12.

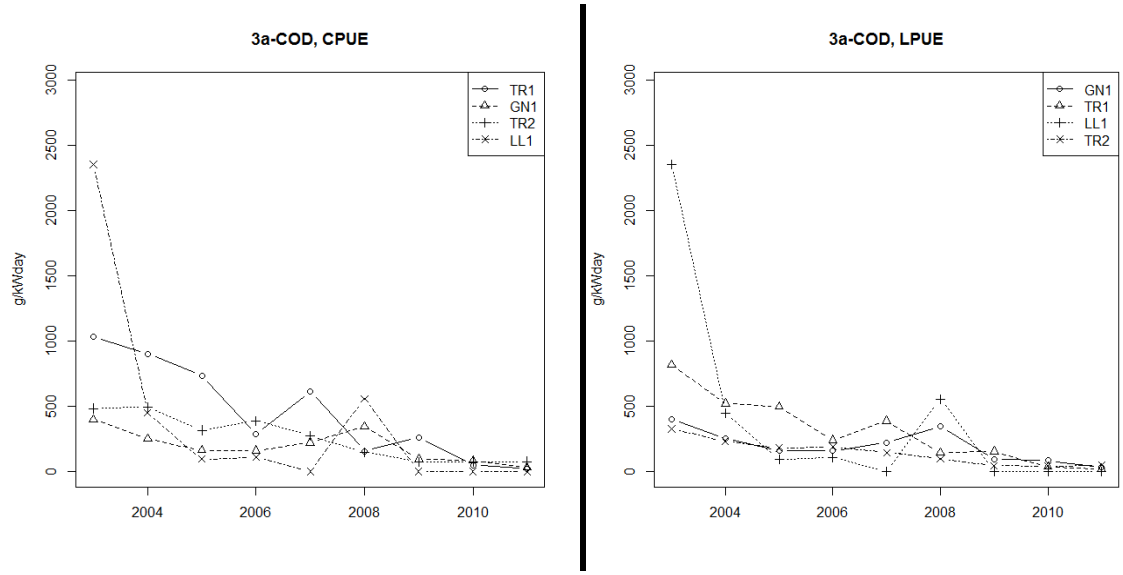

Figure 5.2.3.1 Left: CPUE (g/kWday) of cod by gear category (no special condition). Right: LPUE (g/kWday) of cod by gear category 2003-2011. CPUE and LPUE for the derogations CPart11 and IIA83b are not included in the TR2 gear category in this figure.

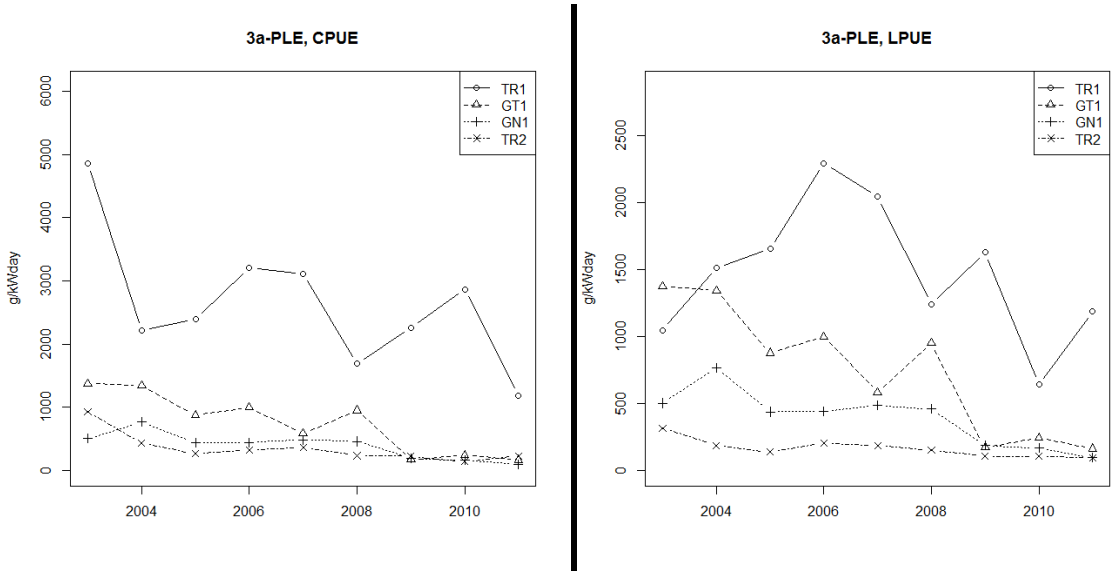

Figure 5.2.3.2 Left: CPUE (g/kWday) of plaice by gear category (no special condition). Right: LPUE (g/kWday) of plaice by gear category 2003-2011. CPUE and LPUE for the derogations CPart11 and IIA83b are not included in the TR2 gear category in this figure. There are no Danish discard data included in the CPUE calculation for TR2 in 2010. With the Danish discard information included, the CPUE of Plaice of TR2 2010 is 980 g/kWd

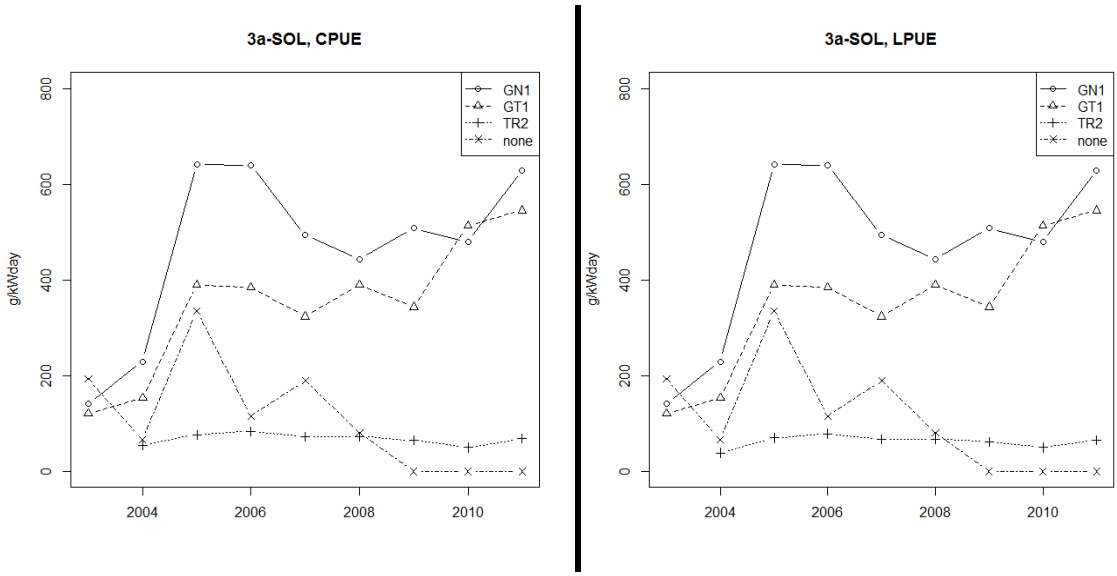

Figure 5.2.3.3 Left: CPUE (g/kWday)of sole by gear category (no special condition). Right: LPUE (g/kWday) of sole by gear category 2003-2011. CPUE and LPUE for the derogations CPart11 and IIA83b are not included in the TR2 gear category in this figure. There is no Danish discard data included in the CPUE calculation for TR2 in 2010. With the Danish discard information included, the CPUE of sole of TR2 2010 is 47 g/kWd.

Table 5.2.3.1. CPUE (g/kWd) of cod, sole, plaice by gear and derogation 2004-2011. Danish discard information for TR2 in 2010 was included in the calculation.

ANNEX	SPECIES	REG AREA	REG GEAR	SPECON	CPUE 2004	CPUE 2005	CPUE 2006	CPUE 2007	CPUE 2008	CPUE 2009	CPUE 2010	CPUE 2011	CPUE 2009-2011
IIa	COD	3a	GN1	none	251	162	159	219	345	93	84	32	74
IIa	COD	3a	GT1	none	538	146	68	86	73	25	0	0	8
IIa	COD	3a	LL1	none	449	94	108	0	555	0	0	0	0
IIa	COD	3a	TR1	none	903	734	289	613	156	261	48	20	140
IIa	COD	3a	TR2	CPART11	0	0	0	0	0	34	21	9	21
IIa	COD	3a	TR2	CPART13	0	0	0	0	0	0	64	57	61
IIa	COD	3a	TR2	IIA83B		26	18	30	7	0	0	0	0
IIa	COD	3a	TR2	none	491	316	388	273	149	73	129	210	90
IIa	COD	3a	TR3	none	54	29	100	23	46	0	0	0	0
IIa	PLE	3a	GN1	none	766	438	444	486	460	187	168	95	156
IIa	PLE	3a	GT1	none	1344	877	998	583	951	172	245	164	195
IIa	PLE	3a	LL1	none						0	0	0	0
IIa	PLE	3a	TR1	none	2209	2401	3200	3110	1694	2260	2867	1188	2247
IIa	PLE	3a	TR2	CPART11	0	0	0	0	0	96	60	73	76
IIa	PLE	3a	TR2	CPART13	0	0	0	0	0	0	230	224	159
IIa	PLE	3a	TR2	IIA83B		70	60	73	72	0	0	0	0
IIa	PLE	3a	TR2	none	430	270	322	367	234	225	437	256	247
IIa	PLE	3a	TR3	none	19	14	3	13	0	0	0	0	0
IIa	SOL	3a	GN1	none	230	642	641	494	444	509	480	630	532
IIa	SOL	3a	GT1	none	154	390	385	324	390	344	514	546	465
IIa	SOL	3a	TR1	none	19	42	78	66	27	18	12	20	16
IIa	SOL	3a	TR2	CPART11	0	0	0	0	0	22	6	9	12
IIa	SOL	3a	TR2	CPART13	0	0	0	0	0	0	58	77	64
IIa	SOL	3a	TR2	IIA83B		0	0	4	10	0	0	0	0
IIa	SOL	3a	TR2	none	55	77	84	72	73	65	20	11	56
IIa	SOL	3a	TR3	none	0	0	0	0	0	0	0	0	0

Table 5.2.3.2 LPUE (g/kWd) of cod, sole and plaice by gear and derogation 2004-2011

ANNEX	SPECIES	REG AREA	REG GEAR	SPECON	LPUE 2004	LPUE 2005	LPUE 2006	LPUE 2007	LPUE 2008	LPUE 2009	LPUE 2010	LPUE 2011	LPUE 2009-2011
IIa	COD	3a	GN1	none	251	162	159	219	345	93	84	32	74
IIa	COD	3a	GT1	none	538	146	68	86	73	25	0	0	8
IIa	COD	3a	LL1	none	449	94	108	0	555	0	0	0	0
IIa	COD	3a	TR1	none	521	496	240	387	142	153	36	20	86
IIa	COD	3a	TR2	CPART11	0	0	0	0	0	0	0	0	0
IIa	COD	3a	TR2	CPART13	0	0	0	0	0	0	35	39	37
IIa	COD	3a	TR2	IIA83B		0	0	0	0	0	0	0	0
IIa	COD	3a	TR2	none	233	180	189	145	96	45	91	135	57
IIa	COD	3a	TR3	none	54	29	100	23	46	0	0	0	0
IIa	PLE	3a	GN1	none	766	438	444	486	460	187	168	95	156
IIa	PLE	3a	GT1	none	1344	877	998	583	951	172	245	164	195
IIa	PLE	3a	LL1	none						0	0	0	0
IIa	PLE	3a	TR1	none	1515	1659	2294	2048	1241	1629	641	1188	1204
IIa	PLE	3a	TR2	CPART11	0	0	0	0	0	10	6	2	6
IIa	PLE	3a	TR2	CPART13	0	0	0	0	0	0	104	98	101
IIa	PLE	3a	TR2	IIA83B		0	0	0	3	0	0	0	0
IIa	PLE	3a	TR2	none	187	137	202	184	150	107	119	50	103
IIa	PLE	3a	TR3	none	19	14	3	13	0	0	0	0	0
IIa	SOL	3a	GN1	none	230	642	641	494	444	509	480	630	532
IIa	SOL	3a	GT1	none	154	390	385	324	390	344	514	546	465
IIa	SOL	3a	TR1	none	19	42	78	42	27	18	12	20	16
IIa	SOL	3a	TR2	CPART11	0	0	0	0	0	0	4	5	3
IIa	SOL	3a	TR2	CPART13	0	0	0	0	0	0	54	74	63
IIa	SOL	3a	TR2	IIA83B		0	0	4	3	0	0	0	0
IIa	SOL	3a	TR2	none	39	70	79	67	68	62	17	11	54
IIa	SOL	3a	TR3	none	0	0	0	0	0	0	0	0	0

5.2.4 ToR 2 Rank regulated gear groups on the basis of catches expressed both in weight and in number of cod

STECF EWG 12-12 presents the gear groups ranked to their relative importance of catches and landings of cod, Nephrops, plaice and sole in 2011.

Table 5.2.4.1 Ranked regulated gear categories according to the proportional catches of cod, Nephrops, plaice and sole 2003-2011. There is no Danish discard information for TR2 in 2010 other than for cod included in this table. Note that the derogations CPart11 and IIA83b are not included in the TR2 category below.

ANNEX	AREA	SPECIES	GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel	2010 Rel	2011 Rel
IIa	3a	COD	TR2	0.83	0.88	0.83	0.91	0.83	0.82	0.82	0.93	0.97
IIa	3a	COD	GN1	0.03	0.02	0.02	0.02	0.03	0.08	0.05	0.05	0.02
IIa	3a	COD	TR1	0.09	0.08	0.13	0.04	0.13	0.06	0.12	0.02	0.01
IIa	3a	COD	TR3	0.03	0.01	0.01	0.03	0.01	0.01	0.00	0.00	0.00
IIa	3a	COD	GT1	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00
IIa	3a	COD	LL1	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
IIa	3a	NEP	TR2	0.99	1.00	1.00	1.00	0.92	0.94	0.99	0.97	0.98
IIa	3a	NEP	TR1	0.01	0.00	0.00	0.00	0.08	0.06	0.01	0.03	0.01
IIa	3a	NEP	GT1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IIa	3a	NEP	TR3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IIa	3a	NEP	GN1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IIa	3a	PLE	TR2	0.77	0.74	0.58	0.58	0.60	0.61	0.68	0.59	0.87
IIa	3a	PLE	TR1	0.20	0.19	0.35	0.35	0.35	0.31	0.28	0.37	0.10
IIa	3a	PLE	GN1	0.02	0.05	0.05	0.04	0.03	0.05	0.03	0.03	0.02
IIa	3a	PLE	GT1	0.01	0.01	0.02	0.02	0.01	0.03	0.01	0.02	0.01
IIa	3a	PLE	TR3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IIa	3a	PLE	LL1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IIa	3a	SOL	TR2	1.00	0.84	0.67	0.68	0.71	0.74	0.67	0.63	0.66
IIa	3a	SOL	GN1	0.00	0.12	0.27	0.24	0.20	0.19	0.27	0.26	0.25
IIa	3a	SOL	GT1	0.00	0.01	0.04	0.04	0.05	0.05	0.05	0.10	0.08
IIa	3a	SOL	TR1	0.00	0.02	0.02	0.04	0.04	0.02	0.01	0.01	0.00
IIa	3a	SOL	TR3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00